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JPRS-EER-86-072

9 MAY 1986

East Europe Report

19980213 135

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AGRICULTURE

GERMAN DEMOCRATIC REPUBLIC

NEW RECRUITS NECESSARY TO AUGMENT AGRICULTURAL LABOR FORCE

East Berlin WIRTSCHAFTSWISSENSCHAFT in German Vol 34 No 3, March 86
pp 341-57

[Article by Prof Richard Heinrich, Dr of Economics, certified economist, born 1922, lecturer at the Institute for Socialist Political Economy, Academy of Social Sciences, CC SED; member of the Editorial Staff of WIRTSCHAFTSWISSENSCHAFT, and by Hellmut Stegmann, Dr of Agricultural Science, born 1929, scientific assistant at the Institute for Agro-Economy, DDR Academy of Agricultural Sciences. Original title: "Problems of Development and Rational Utilization of the Social Labor Potential in GDR Agriculture".]

[Summary] The article deals with quantitative and qualitative aspects of the labor potential in GDR agriculture. Proceeding from the conditions in agriculture after liberation from fascism, the dynamics and changes in the demands made on the labor potential since the early fifties by stages, are elucidated. The level arrived at in the labor potential of the socialist agriculture of the GDR, in particular the difference in the distribution of labor between the northern and southern counties, are analyzed and described.

The author raises basic questions of reproduction of the social labor potential in the eighties. The stabilization of the labor resources and their planned reproduction by winning and training apprentices are focal points in this context. The territorial balance of labor demand and availability has to be improved and full utilization of the labor potential to be achieved by means of deepened cooperation. A further reduction in the demand for human labor is only possible by closing gaps in the mechanization of the cultivation of principal crops, and by further mechanization in animal production.

[Text] Objectively speaking, the comprehensive intensification of agricultural production in the eighties calls for increasing the efficiency of the subjective factor. Man, as the prime productive force of the production process as well as its creative element, is making an ever greater impact on the quantity, quality and efficiency of agricultural production. The special role played by human labor (in the sense of "labor is the living, creative fire") and by the labor potential finds expression most of all in the fact that:

- man directs and plans the production process; that he sets in motion all the remaining productive forces involved in the labor process and is capable of using them efficiently and developing them further;
- the labor force and its labor potential not only constitute an intensification factor in and of themselves but that they also have a major impact on all the remaining intensification factors and their meaningful collaboration and thus help determine the level, speed and efficiency of intensification as such;
- the responsibility of the labor force for the effective utilization of the means of production entrusted to it is constantly rising, particularly as regards the larger number of items under each individual worker's control;
- the social expenditures for the reproduction of the labor potential continue to rise along with the higher training and living standards;
- the labor potential is a social resource which is quantitatively limited by the number of persons of working age, i.e. by demographic factors.

Another reason why the subjective factor is assuming greater importance in agricultural production is that a solid understanding of the biological, economic and technical processes under varying natural conditions and changing weather conditions places high demands on the individual. The changing nature and content of work resulting from the development of production relationships and the implementation of scientific-technological progress are placing increased demands on the know-how, the capabilities and skills of cooperative farmers and workers. The increased use of key technologies, even in agricultural production, acts to speed up this process considerably. Because of the large amount of funds allotted to agriculture and forestry--the base figure per individual member of the labor force in 1984 was 123,000 marks--the individual cooperative farmer and worker is exerting constantly greater influence upon both output and efficiency. As agricultural production is combined with biological processes, the impact is not only making itself felt during the current year but also in years to come. This places very substantial demands on the individual's sense of responsibility, his discipline and reliability as well as his willingness and ability to make decisions.

In 1984, there were some 1.25 million permanent employees (not including apprentices) in agriculture, forestry and food production in the GDR² (under the jurisdiction of the ministry of agriculture, forestry and food-stuffs). This corresponds to 14.7 percent of those permanently employed in the economy as a whole. There were some 854,000 members of cooperatives and workers engaged in crop and animal production in 1984. This, in turn,

corresponds to about 10 percent of those permanently employed in the economy as a whole.³ This labor potential permits our agriculture to produce some 50 percent of the primary raw material output of the economy as a whole, providing thereby the raw materials for a supply of foodstuffs of internationally respectable proportions. During this same⁴ period, 42,000 apprentices were in training in agriculture and forestry.

Permanent members of cooperatives provide 77 percent of the labor potential of direct agricultural production. Their LPGs work 87.1 percent of available acreage and have more than 80 percent of the basic assets at their disposal. They produce 95 percent of the state share of the crops and 77 percent of the livestock. For this reason, the cooperative farmers of the GDR bear a heavy responsibility for agricultural production.

History of the Development of the Agricultural Labor Potential in the GDR

For an extended period of time, agriculture was able to free manpower for use in other sectors of the economy by increasing production. Agriculture was a significant potential source of social labor for industry, construction and other sectors of the economy and society. The dynamics of this process become apparent when one studies the development of the labor potential in agriculture over an extended period of time.

In 1939, some 1.7 million persons were working in agriculture on the territory of what is now the GDR. 36 percent of these were wage workers. Farmers or agricultural laborers without any professional background made up the agricultural labor force for the most part. In most farm families, the children were taught to work the land at an early age. Most of the manpower on small and medium-sized farms and a large part of the agricultural labor employed by capitalist farming operations did the various kinds of manual labor involved in the production process. As a rule, both the work to be done and the machines and implements used were simple and elementary. Scientific know-how did not play a role except on the capitalist organized estates; experience based on years of repetitive and barely altered activity tended to predominate.

In the immediate postwar era, the number of workers in agriculture increased at first. In 1946, for example, there were 2.3 million persons working in agriculture on the present territory of the GDR. The number of those working for wages had increased to 977,000, making up 42 percent of the total labor force.⁵ There were several reasons for the large number of people working in agriculture at that time, e.g.:

- the extreme lack of draft animals and agricultural machinery. At the same time, the intensive exploitation of the soil called for large amounts of labor;

- the strong influx of refugees into rural areas and the shortage of jobs in industry as a consequence of wartime destruction;
- the lack of food in the partially destroyed cities which fostered a move to the country and/or prevented the return to the cities.

As the reconstruction of the economy began in 1948-49--the creation of jobs as a result of the development of heavy industry; the expansion of mining operations and the development of the construction industry and other sectors of the economy--the number of persons engaged in agriculture started to decline. When prewar output levels and livestock holdings were attained once more in 1951-52, manpower figures also reverted to the 1939 level. The above-normal manpower levels induced by World War II tapered off in several stages because:

- workers moved into other sectors of the economy as a result of increased labor productivity (which amounted to a direct, absolute liberation of manpower)
- of a below-average manpower reproduction rate as compared with the economy as a whole (which amounted to an indirect, absolute freeing of manpower).

Table 1. Manpower* Trends (Not Including Apprentices) in Agriculture and Forestry (in Thousands)

<u>Year</u>	<u>Total</u>	<u>Percentage</u> <u>Actually</u> <u>Employed</u>	<u>Female</u>	<u>Percent</u>
1949	2242	100	1275	100
1952	1650	74	843	66
1960	1304	58	596	47
1970	997	44	457	36
1975	895	40	384	30
1980	878	39	365	29
1984	914	41	361	28

* Sector of economy corresponding to statistical tables

Source: Statistical Yearbook of the GDR, 1985, GDR State Publishing House, Berlin, 1985, pp 19, 20.

The trend in manpower figures and needs in agriculture is the result of a complex network of social, economic, demographic, territorial and management factors. Historically, we may distinguish between the following stages:

From the end of the war to the early fifties, the major task was to overcome the consequences of the war and to assure the basic nutritional requirements of the people with the help of manual labor-intensive farming operations and the resettlement of new farmers. Over the years, the average manpower to arable land ratio was about 34 per 100 hectares.

Between the fifties and early sixties, the GDR was able to solve the social problem of feeding its population. As the GDR agriculture was restructured along socialist lines; as the simple production of goods by working farmers was replaced by production in cooperatives; as agricultural mechanization continued apace and jobs in industry became more plentiful, the number of persons engaged full-time in agriculture dropped to some 346,000 as a result of rising labor productivity between 1952 and 1960 and the manpower to arable land ratio dropped to 22 to 23 full-time farmers per 100 hectares.

The next stage between the early sixties and mid-seventies was marked by a growing stabilization of foodstuff production at steadily rising levels. Mechanization of farming activities in particular continued to progress within the framework of the intensification of the alliance between the working class and the class of cooperative farmers. The introduction of industrial-type production methods continued to raise the productivity of live labor in the socialist farming operations. Agriculture made its own specific contribution to a more efficient economy-wide manpower structure through the introduction of direct and (even more so) indirect labor-saving methods. The decline of manpower levels was also due to fluctuation and migration, a large number of retirements and a below normal addition of qualified labor from the training institutions.

Between 1960 and 1975, the labor force declined by another 409,000 as a result of the large number of jobs available in other sectors of the economy. The manpower to arable land ratio dropped to 13 full-time farmers per 100 hectares. In part, gains in labor productivity no longer sufficed to offset the decline in manpower and here and there was a growing manpower shortage. In addition, the average age of those engaged in agriculture rose to 44, i.e. some 3 to 4 years higher than the average age of the labor force as a whole.

During the fourth stage--between the late seventies and mid-eighties--the demands on agricultural production increased (particularly in view of the declining availability of arable land) as a result of the implementation of the economic strategy approved by the 10th party congress and the transition to the assets-conserving type of intensification. The progressive decline in imports of means of production such as feed grain and foodstuffs resulted in structural changes in agricultural production and this, in turn, had an impact on manpower needs. In this context, the rise in production of fruit, vegetables and special products as well as the assumption of responsibilities by agriculture in the storage, treat-

ment and processing of agricultural products in addition to rationalization and the production of the means of rationalization are playing a major role. Progress in mechanization began to slow down both because of a shortage of funds and the non-availability of technical solutions for hard-to-mechanize processes. To some extent, this also exhausted the possibility of freeing additional manpower from agriculture as a whole. In the long term, these possibilities will reoccur only when means of production and production processes are introduced which are based on new problem solutions. This is why it was necessary to stabilize and raise the labor potential in agriculture in order to assure an average manpower to arable land ratio of 14 to 15 full-time workers per 100 hectares.

The labor potential of the socialist agricultural establishment in the GDR is distributed very unevenly which is attributable in part to the differences in the historical development of agriculture in the various regions, e.g. the preponderance of small farms in Thuringia and other southern districts and the preponderance of Junker and gentleman farmer estates in the north.

Table 2. Full-Time Farmers in Primary Agricultural Production (Per 100 Hectares of Arable Land)

<u>Year</u>	<u>GDR</u>	<u>Southern Districts</u>	<u>Northern Districts</u>
1955	24.1	29.6	19.8
1960	19.6	26.2	14.1
1965	16.2	21.4	12.7
1970	14.3	17.3	11.5
1975	12.8	15.5	10.3
1980	12.5	15.6	10.8
1984	14.4	16.6	12.1

Source: Based on data of the Central State Bureau of Statistics and Statistical Yearbook of the GDR, 1985, op. cit.

The districts of Rostock, Schwerin and Neubrandenburg (combined here under the heading of northern districts) have a distinctly lower manpower to 100 hectares of arable land ratio than the southern districts average and the overall GDR average.

Looking at the two primary production areas in agriculture, we arrive at the following result:

The number of those engaged in animal production (based on 100 livestock units) is far too diversified even if one takes the differences in the number of animals and in livestock management in the various districts

into account. The situation is even worse in the LPGs engaged in crop production. Even if allowances are made for differences in natural conditions, land availability and farming methods, the labor force in the northern districts of the GDR is noticeably smaller than in the southern districts. The difference is particularly marked in the case of, say, Schwerin and Erfurt. The Schwerin district manpower to arable land ratio stands at 4.2 per 100 hectares, which is 25 percent below the GDR average and 38 percent below that in the Erfurt district. The manpower requirements, however, are at most 20 percent below the GDR average and 30 percent below that of the Erfurt district.

Table 3. Full-Time Workers in Crop and Animal Production in Selected Districts of the GDR Per 100 Hectares of Arable Land and/or 100 Livestock Units (as of 1983)

<u>District</u>	<u>LPG Crop</u>	<u>LPG Animal</u>
	<u>Production</u>	<u>Production</u>
	<u>Full-Time Workers</u>	
	<u>Per 100 Hectares</u>	<u>Per 100 Livestock</u>
	<u>Arable Land</u>	<u>Units</u>
GDR	5.6	7.6
Schwerin	4.2	7.6
Neubrandenburg	4.9	7.5
Rostock	5.4	7.4
Suhl	6.9	7.3
Erfurt	6.7	7.6
Dresden	6.4	8.2
Gera	6.7	8.1

Source: "Analyses of Differing Manpower Trends..." Institute for Agro-Economy, GDR Academy of Agricultural Sciences, 1984 (unpublished manuscript).

In the northern districts the labor shortage in crop production has a stronger impact than in the southern districts. Because of the lower population density, far fewer rural residents employed in other sectors of the economy can be mobilized to help out during peak seasons. Due to the lower age and the demographic trends in the northern districts, the reproduction of the labor potential has been taking a somewhat more favorable course than in the southern districts of the GDR. Supported by labor-saving methods which contribute to a reduction in manpower needs and the target-oriented utilization of funds, this trend must be taken advantage of in order to achieve a balanced labor force. In the southern districts of the GDR problems related to the reproduction of the labor potential primarily have their origin in the unfavorable age structure of the overall population and the declining number of high school graduates.

Table 4. Labor Force in Crop and Animal Production in Selected Districts by Age Groups (as of 1984)

District	LPG Crop Production			LPG Animal Production		
	Average Age	Under 25 (in percent)	Over 50 (in percent)	Average Age	Under 25 (in percent)	Over 50 (in percent)
GDR	42.3	14.4	33.4	42.5	13.2	35.1
Rostock	40.4	15.9	29.5	41.3	12.9	30.5
Schwerin	40.8	15.8	30.9	41.9	13.7	33.4
Neubranden- burg	40.6	17.7	31.2	41.6	14.4	33.2
Gera	44.9	13.8	42.9	44.1	12.4	40.3
Suhl	45.3	12.4	44.7	43.5	13.9	39.6
Erfurt	43.8	12.4	39.4	43.2	12.0	37.0
Dresden	43.4	12.7	38.9	42.9	13.3	36.7

Source: Central State Bureau of Statistics Census of Age Groups of 30 Sep 84. Unpublished documents of Institute for Agro-Economy, GDR Academy of Agricultural Sciences, Berlin 1985.

Table 4 provides a clear picture of the differences in age structure between the northern and southern districts. In most districts, there was a rise in the over-50 age group during the past 5 years. This will place high demands on the utilization and reproduction of the labor potential in agriculture during the upcoming 5-year plan cycles and on the rate at which methods based on scientific-technological progress can be implemented to reduce time and manpower needs for the production of agricultural raw materials and foodstuffs.

The decline in manpower in agriculture is reflected in the decline in the percentage of the agricultural labor force of the labor force as a whole. In 1950, agriculture made up for 27.9 percent of the total labor force. By 1970, it had dropped to 12.8 percent and now, in the eighties, it stands at about 10.7 percent.

Table 5. Labor Force Percentages in Selected Areas of the Economy

Year	Industry	Construc- tion	Agriculture, Forestry	Transport, Com- Post, Com- munications	Com- merce	Non-Pro- duction
1950	29.2	6.5	27.9	6.3	9.4	12.5
1960	36.0	6.1	17.0	7.2	11.6	15.5
1970	36.8	6.9	12.8	7.5	11.0	17.5
1975	38.2	7.0	11.3	7.6	10.6	19.0
1980	38.0	7.1	10.7	7.4	10.3	20.1
1984	37.9	6.9	10.8	7.4	10.1	20.9

Source: Statistical Yearbook of the GDR 1985, pp. 17, 18, 19, 111.

Long-range statistics indicate that the distribution ratios of the social labor potential have been relatively constant (cf. Table 5).

If the labor force in the economy as a whole remains constant, any increase in manpower in one sector will be offset by a comparable decline in another. Thus, raising labor productivity while making full use of indigenous natural and economic resources is of the essence in all sectors of the economy.

The increase in the total labor force by some 1,303 million persons between 1950 and 1984 had the strongest impact on industry (where the rise amounted to 153 percent) and on the non-production sector (197 percent). During that same time period, the number of those employed in agriculture and forestry declined by about 1,091 million persons. Thus, the transition to large-scale socialist production and progressive mechanization led to a drop in the labor force even as the ratio of the farmer-to-resident-population doubled.

Table 6. Labor Force and Resident Population Per Farm Worker

<u>Year</u>	<u>Total Arable Land</u>	<u>Farm Population (in 1000's)</u>	<u>Farm Population per 100 hectares arable land</u>	<u>Resident Population per farmer</u>
1950	6526,6	1,935,5	29.7	9.49
1960	6419,8	1,250,1	19.5	13.75
1970	6286,4	955,7	15.2	17.86
1975	6295,5	852,0	13.5	19.74
1980	6269,1	830,7	13.2	20.17
1984	6240,2	865,4	13.9	19.25
<u>1984 1950</u>	95.6	44.7	46.8	202.8

Source: Statistical Yearbook of the GDR 1985, p. 180; Report No. 7 of the Institute for Agro-Economy.

The decline in the number of those employed in agricultural production as against the other sectors of the economy is of great significance. "The more time society requires to produce wheat, livestock, etc., the less time it gains for other types of production--be it material or intellectual."⁶ The decline in manual labor and the transition from individual machines to systems of machinery combined with the implementation of new production processes made it possible to raise labor productivity substantially and this, in turn, led to more intensive use of non-renewable soil and a sizable reduction in working time.

Thus, average working time per production unit of primary crops is reduced by more than 50 percent as a result of the transition to joint co-operative labor and the concomitant far-reaching mechanization of tillage, cultivation and harvesting operations and the use of chemicals for the purpose of fertilization, weed killing and plant protection. Increases in labor productivity in animal production, e.g. in milk and cattle for slaughter production, were not as substantial. But the strong growth rates in egg production were due to totally new processing methods which include all phases of the production and labor cycle. To ensure industrial-type egg output, new coordinated technologies for the care and feeding of the animals as well as feed preparation and waste disposal have been developed. Even the laying hens at the high-production chicken farms have been selected from specially improved breeds. This enabled us to achieve a complex solution which in turn led to the strong growth rates in labor output.

Table 7. Average Working Time per Production Unit (Based on 1961-1965=100)

<u>Product</u>	<u>1966-1970</u>	<u>1971-1975</u>	<u>1976-1980</u>	<u>1981-1984</u>
Grain	67.2	45.2	43.8	44.0
Potatoes	77.8	64.9	53.1	46.9
Sugar Beets	62.4	55.9	46.5	45.3
Milk	73.3	61.3	56.0	54.7
Beef	85.0	78.5	81.1	84.0
Pork	90.0	74.8	65.2	55.2
Eggs (per piece)	65.4	45.3	39.5	38.3

Source: Unpublished working paper of Institute for Agro-Economy of the Academy of Agricultural Sciences of the GDR, 1985.

Despite the fact that great progress has been made in agriculture and significant results have been achieved, the increases in labor productivity have varied according to sectors, regions and individual farming operations. An analysis of existing natural and economic production conditions, i.e. the soil, the highly qualified labor force and the materials and technology it has at its disposal, and of the existing socialist farming operations (the LPGs, VEGs and their cooperative institutions) shows that there are additional ways in which agriculture can increase production. Naturally enough, the utilization of this vast potential depends on the implementation of scientific-technological progress and the development and modernization of the physical-technological base by drawing on key technologies and it depends as well on weather conditions. More and more, the full utilization of natural and economic resources will be determined by the subjective familiarity of man himself with the complex and complicated agricultural production process, with modern production methods as well as with technology.

Current Tasks of the Rational Utilization of the Social Labor Potential of Socialist Agriculture

Due to demographic and infrastructural factors as well as variations in the efficiency of socialist farming operations, labor potential in agriculture has developed along different lines. In some of the LPGs and VEGs --more so in the north than in the southern districts of the GDR-- divergencies have arisen as between the demands on production and on manpower needs contingent upon available physical-technological resources on the one hand and the available labor potential on the other. By the early eighties, there was a shortage of some 55,000 to 60,000 persons in agriculture as a whole and of about 30,000 in crop production alone.⁷ In a number of farming operations, labor potential emerged as a factor limiting the transition to comprehensive intensification. We therefore were and still are faced with the task of gradually overcoming the divergences between the various LPGs, VEGs and their cooperative institutions with regard to meeting their manpower needs.

In the development of rational utilization of the labor potential in agriculture, we have set the following goals:

1. There is a need to make more efficient use of the labor potential in the LPGs, VEGs and their cooperative institutions by means of intensified cooperation and more purposeful application of the principles of socialist management so as to contribute to assuring territorial conformity between manpower needs and labor potential.
2. There is a need further to perfect our physical-technological base by means of rationalization and reconstruction so as to increase the efficiency of human labor and to improve working and living conditions.
3. There is a need to make more effective use of existing high educational reserves in agriculture and to develop advanced learning programs in keeping with the increased demands of comprehensive intensification.
4. There is a need to develop the structure of the labor potential based on demand; apprentices and young skilled workers are to be assigned to production jobs--particularly in LPGs in which a shortage of manpower exists.

If we generalize the abovementioned goals, we find that there are two principal ways in which a better manpower balance can be achieved:

--through the reduction of working time by means of the further replacement of human labor by reified labor, resorting to goal-oriented rationalization and the increased improvement of labor and production organization methods--particularly by taking advantage of the potential inherent in territorial organizational structures, cooperation and planned cooperative collaboration.

--through the enlargement of the existing manpower reservoir by way of expanded reproduction; through the introduction of manpower particularly as replacements for cooperative farmers and workers leaving the work force by reason of age and through greater diversification of the labor force itself.

The measures to be undertaken to achieve these ends in the individual socialist farming operation, in the immediate region, in cooperative undertakings and in the district may be different but in each case an effort will have to be made both to reduce work time and to increase the efficiency of the available labor potential as well as its reproduction in conformance with demand--in other words, to achieving balance and assuring year-round productive activities on the part of cooperative farmers and workers.

This calls for greater efforts in this direction particularly in the area of crop production and well thought-out long-range programs designed to achieve this end.

One important aspect of the efficient utilization of available natural and economic resources in agriculture is to guarantee balance between manpower needs and manpower resources both geographically and in terms of time.

A number of LPGs will be able to take greater advantage of natural conditions, of the yield potential of the soil and the crops and the output potential of the livestock through adherence to agro-technical deadlines determined by the harvesting of crops, through more intensive care of animals and the reduction of losses. In order to do this, the labor potential of these operations will have to be stabilized. One way in which this has been done was by means of the FDJ "animal production" initiative which saw a number of FDJ district organizations enter into animal production partnerships with 218 LPGs. Up to November 1984, more than 2,870 FDJ members had taken on jobs on these farms. Another way in which particularly those LPGs which suffer from a labor shortage have increased their potential is by recruiting labor in the villages which was previously engaged in other sectors of the economy.

In addition to the political-ideological and organizational aspects of the stabilization of the labor potential, there is a need to create the proper physical conditions; housing, day care facilities for children and providing services to the villages. Complex development alone offers a guarantee for a lasting and stable development of the labor potential. The idea also is to continue to develop typically village-like conditions which make it personally attractive for young people to work on a farm. This would include the possibility of having a garden of one's own and of keeping one's own animals. But the beauty of agriculture and a village-like atmosphere also play an important role.

A sizable number of LPGs and VEGs have already achieved higher reproduction of their labor potential in this manner. For the most part, the stabilization they have achieved is attributable to their having reclaimed manpower from other sectors of the economy. In the long run, however, it is more efficient from an economical point of view to guarantee reproduction of the social labor potential by training high school graduates for agricultural occupations.

The planned reproduction of the labor potential will primarily rest on finding and training apprentices. Thus far, however, the natural decline in the number of agricultural workers has not been offset by occupational training. A variety of programs, particularly between 1980 and 1984, managed to recruit a fairly substantial number of agricultural apprentices. The natural decline in manpower was thereby offset to a greater extent than before but by no means entirely. For economic and demographic reasons, complete simple reproduction of agricultural manpower requirements will not be possible on the basis of indigenous occupational training in the future either.

The ratio is likely to have worsened in 1985. Among the various districts and even more so among the kreise, cooperatives and farming operations there still exist substantial differences in the reproduction of manpower levels as opposed to apprentice training. Particularly in those districts where many members of the labor force are over 50 the reproduction rate in agriculture is low due to demographic trends and the concentration on other sectors of the economy.

Table 8. Reproduction of Manpower in Agriculture through Occupational Training (Percentage Ratio of Occupational Trainees Entering Agriculture to Those Leaving Because of Age)

<u>Year</u>	<u>Percentage</u>
1980	58.9
1982	73.2
1983	81.6
1984	86.7

Source: Based on reports issued by Central State Bureau of Statistics.

It is particularly important to train apprentices for work in animal production. The number of young people working in modern production facilities and enjoying good working and living conditions is markedly greater than that of young farmers working on "traditional" farms. Quite often, there are fewer young people willing to perform heavy physical labor and other unpleasant chores. The proportion of heavy physical labor to be done in the stables and other facilities of farms situated in the Karl-Marx-Stadt, Gera and Leipzig districts is decidedly higher than the country-wide average. Similarly, these districts lag far behind in the manpower reproduction rates. These examples make it plain that even

greater efforts need to be made to achieve rationalization of the workplace, including mechanization as well as the reproduction of the labor potential. There cannot be a uniform formula for all districts, kreise and farming operations. Instead, each formula must be worked out on the basis of the actual situation in each instance. This places particularly high demands on the LPG (T) management which must make an even greater effort to recruit a new generation of farmers and farm workers.

Exactly how the school graduates will be distributed among the different sectors of the economy and the various regions of the country depends on demographic trends, i.e. on how many graduates are actually available each year; on economic priorities and on reproduction needs based on the structure and development of manpower in the different sectors of the economy.

The need for rapidly and constantly rising agricultural output (which to a large extent is contingent on reproduction of the labor potential based on actual demand) and the higher average age of the labor force (as compared to other sectors of the economy) call for an adequate supply of agricultural apprentices. The ratio of agricultural apprentices to apprentices in the economy as a whole has consistently and at times considerably lagged behind.

In the distribution above all of school graduates among the various sectors of the economy preference has thus far always been given to industry and construction. If one compares the proportion of apprentices with the proportion of all employees, agriculture ranges below all the production sectors. Although the proportion of apprentices in agriculture has increased, their number is not large enough to cover the required reproduction from its own ranks. For this reason, assuring reproduction of the labor potential in agriculture continues to be a problem to be tackled by society as a whole. This by no means limits the responsibility of agriculture, of the LPGs, the VEGs and their cooperative facilities for vastly enlarging their efforts to guarantee the required labor potential and to limit fluctuation of manpower levels.

Table 9. Percentage Share of Agriculture and Forestry of Total Labor Force and Apprentices

<u>Year</u>	<u>Percentage Share of Agriculture and Forestry of</u>	
	<u>Total Labor Force</u>	<u>Apprentices</u>
1970	12.8	5.8
1980	10.7	6.7
1983	10.7	7.8
1984	10.8	10.0

Another effort aimed at enlarging the available labor potential is the recruitment of women for jobs in agriculture. Over the years, the proportion of women working in agriculture has been declining steadily.

Table 10. Proportion of Women in Total Labor Force (in Percent)

<u>Year</u>	<u>Economy as a Whole</u>	<u>Industry</u>	<u>Agriculture & Forestry</u>
1960	45.0	40.5	45.7
1965	46.7	39.9	47.7
1970	48.3	42.5	45.8
1980	49.9	43.3	41.5
1984	49.4	41.9	39.4

Source: Statistical Yearbook of the GDR, pp 19, 20, 117.

Maintaining the number and proportion of women of the total agricultural labor force is rendered difficult because of the relatively high average age of the women working and the insufficient number of women applicants in some fields. This applies in particular to crop production where much of the manual labor previously performed by women is now done by machines and women are as yet inadequately trained to work this equipment. But on some of the farms efforts are being made to use women to work the machinery in appropriate circumstances in order to provide them with interesting and demanding work. In addition, other types of jobs are to be restructured and/or created which correspond more fully to the ergonomic parameters. At the same time, efforts are under way to have more and more of the still necessary manual labor performed by the entire farming community. This is a problem which has thus far only been partially solved and which calls for additional efforts aimed at upgrading the technology and improving the quality of political-ideological as well as organizational work. There is a need to pay even closer attention to this problem in the context of recruitment, occupational training and the advanced training of top cadres.

An increase in the number of women active in social production can also be achieved by providing more jobs for women in stationary, mechanized storage and processing facilities as well as in marketing. In addition, the proportion of women in management positions and pre-production should be further increased.

Close attention should also be paid in addition to construction alterations of machinery to modern methods of scientific management, to work schedules and compensatory formulas as well as to the further improvement of working and living conditions. In the interest of greater participation by women in social production still existing problems in the care of children and old people should be solved.

As cooperation in agriculture continues to intensify, it is becoming easier in many of the regions to meet manpower needs--especially during peak periods--to a large extent by drawing on manpower already available in that region and to achieve full utilization of the social labor potential. The cooperation councils support all initiatives aimed at collaboration among various farming operations which try to make joint, planned use of their labor forces so as to be able to deal with the peak periods during crop production better. This includes the timely use of animal handlers, of maintenance personnel, of managers and administrators, of construction and improvement brigades as well as village residents especially during beet cultivation and harvesting operations. Similarly, there is a need to make use of those engaged in crop production in animal husbandry during the winter months as well as in maintenance work; in rationalization programs to help all the cooperation partners and in soil improvement and construction. This requires the labor force to be increasingly diversified in its skills. But the task and/or function-oriented training and/or advanced training for these manifold assignments is not merely an economic necessity; it also plays a part in creating more satisfaction and joy among the cooperative farmers and farm workers by providing them with diversified and responsible job content.

Although results have been good in intensifying cooperation, the majority of these cooperative undertakings have not yet taken full advantage of the options available to them to achieve optimal gain from the available labor potential.

Despite all the progress, it still is a fact that the cooperative farmers and farm workers still put in more working hours than the economy-wide average in order to meet their deadlines during peak periods. Thus, the actual number of working hours for cooperative farmers is still high. In 1983, full-time members of the labor force working on state-owned farms and forest lands put in 1,923 hours each. The comparable figure in industry was 1,802 hours. In 1983, full-time workers in the LPG (P) worked 1,963 hours and those in the LPG (T) worked 2,056 hours. Even if all indigenous reserves are exhausted, it will still be necessary in years to come to assign manpower from other sectors of the economy to the job of bundling straw and harvesting fruit and vegetables without incurring losses. This can be done as a planned training program at secondary and technical schools and institutions of higher learning and be combined with other educational programs. In addition, efforts will have to be made as before to recruit village populations as well as manpower resident in nearby cities to help cope with the extra work during peak periods. During the fruit picking season this can suitably be combined with ways of self-provisioning.

In addition to programs aimed at reproduction and better utilization of the labor potential in the cooperatives, there is a need for intensive efforts to reduce demand for human labor in the agricultural reproduction process. In this context, full use should be made of the results of scientific-technological progress and of rationalization programs designed to make work and production processes more efficient. Innovator activity should be directed in particular to the introduction of labor-saving programs. With regard to increasing the efficiency of the technological base by means of labor-saving programs on existing machinery or through the introduction of a new generation of more efficient machines the economic options are somewhat limited. This is the result, for one thing, of the resource picture as a whole and for another, of the lack of new solutions for mechanized agricultural work processes and, in some instances, also of the relatively small quantities of new equipment required.

Due to the fact that innovation processes tend to proceed along different lines, the reduction in the demand for human labor does not take place at the same rate or in a linear fashion over extended periods for all agricultural products and processes. That is why highly mechanized processes still alternate with heavily manual labor intensive ones. Both aspects must be taken into account when determining manpower levels and composition. This is also closely tied to the level of mechanization already attained and the possibility of further mechanization of particular segments of the production process. Most of the segments of grain and feed production, for example, had already been mechanized to a large extent by the early seventies. As existing equipment is replaced by a new generation of machines in such instances only minor gains in labor efficiency are usually attained. In many cases, this places a burden on the economics of further replacement processes.

At the same time, the significant advances in the mechanization of some work processes involving major crops cannot hide the fact that a good part of this work has not or has not sufficiently been mechanized and still calls for more or less intensive manual labor. This applies to the cultivation of beets, for example; to storage of straw, harvesting potatoes, collecting rocks and tending the irrigation equipment. A fairly substantial amount of human labor is also involved in the production of fruit, vegetables, spices, medicinal plants and other special cultures.

Structural changes in farming undertaken for economic reasons sometimes have a strong impact on demand for human labor, resulting in growing manpower needs in some regions. One of the reasons for this is that these particular cultures place great and varied demands on mechanization and that science and technology have not worked out the appropriate solutions as yet. For another thing, these cultures (as compared to grain, for

example, and other primary crops) are not grown in such large quantities. Since there is only a slight demand for machinery of this type, the equipment is produced either in small quantities or even as an individual item.

In this context, it is very important to look into the appropriate machinery to serve specific sectors or farming operations and into greater international cooperation with the socialist countries.

Thus far, work processes in animal production are still less mechanized than in crop production. Manual labor still plays a major role in the preparation of fodder, in feeding and in waste disposal in the less mechanized animal pens.

From the point of view of getting the required work done and making efficient use of the social labor potential, closing gaps in mechanization in the primary cultures and introducing more mechanization in animal production is of the greatest importance. This is the main source of saving both labor and jobs which are not or are insufficiently filled at this time.

The qualitative aspects of the labor potential are assuming an ever greater significance in the agricultural intensification process. This applies in particular to occupational and political qualifications, general educational levels and occupational aptitudes and skills. Over the years, a high level of occupational qualifications has been attained in socialist agriculture. Some 90 percent of the full-time work force has completed an occupational training program. Based on this, advanced, workplace-related, scientific-technological education has become one of the main avenues of raising educational standards and more effectively applying the results of scientific-technological progress. These qualification programs are given at the training centers of socialist agriculture, at kreis agricultural schools and cooperative academies as well as at the monthly brigade meetings, at the cooperative labor schools, on the day of the animal keeper or milker, as part of competitions among specialists (e.g. milkers, shepherds, insemination technicians, plowmen) and at the farms themselves. Those LPGs, VEGs and their cooperative institutions do best in solving the problems connected with these training programs which draw on their own professionally qualified personnel or on personnel from the immediate surroundings.

By means of constant, workplace- and job-related training and advanced training the social labor potential should be better utilized and its diversification enhanced so as to take greater advantage of the existing skills of the agricultural workforce in the comprehensive intensification of crop and animal production. Continuing training programs which provide for greater skills in line with scientific-technological advances are a basic step toward developing the creative potential of our cooperative farmers and workers and thus toward coping with the increased responsibilities of agricultural production.

As a result of the advances in science and technology, more and more changes are taking place in GDR agriculture both as regards the relationship between human and reified labor and within the field of human labor itself. While the amount of human labor is declining as against reified labor, the subjective, qualitative aspect of labor is assuming an ever-increasing importance--in that it has become a major determinant in yield, performance, quality and efficiency. For this reason, the labor potential in the LPGs, the VEGs and every cooperative is and will continue to be a decisive growth factor in intensification. The problems related to the development and rational utilization of the social labor potential in GDR agriculture are thus inseparably linked to the attainment of a qualitatively higher level of intensification in the agriculture of the eighties and nineties. The transition to the cost-saving type of intensively expanded reproduction places great demands in every LPG, VEG and cooperative on the development and efficient utilization of the social labor potential. The fundamental goal will be to raise the efficiency of labor-saving reproduction processes and to combine these increasingly with cost-saving reproduction processes.

The necessary rise in output even as available land decreases calls for a high growth rate in labor productivity. The goal of the comprehensive intensification process will therefore be to make efficient use of human labor and to handle the required replacement processes in an equally efficient manner. Based on existing price and cost figures, agriculture will have to arrive at cost-effective solutions in the replacement of human labor by reified labor. This is another reason for enhancing the efficiency of education and qualification and for defining the performance standards and economic incentives in the appropriate manner. This will have to contribute to making the proper and appropriate use of available, qualified and consciously acting labor collectives and motivating them to greater achievement.

At the same time, economic considerations indicate that planned reproduction and utilization of the labor potential be undertaken in such a way that sectoral, territorial and operational requirements for efficient utilization of available natural and economic resources are taken into account. This will create the conditions under which we can continue successfully to pursue our agricultural strategy and do an even better job of exploiting our reserves in order to achieve growth and efficiency in the years ahead.

FOOTNOTES

1. Karl Marx, Friedrich Engels, "Works," Dietz Verlag, Berlin, 1956, vol 42, p. 278.

2. The proportion of those employed in forestry is about 5.7 percent. Since these figures do not deviate from the general trend, they will not be dealt with separately below.
3. "Statistical Yearbook of the GDR 1985," GDR State Publishing House, 1985, pp 184 and 17.
4. Ibid, p 184.
5. K. Groschoff, "Die Entwicklung der Lohnarbeit in den privaten Landwirtschaftsbetrieben der DDR" [Wage Labor Trends in Privately-Owned Agriculture in the GDR], WIRTSCHAFTSWISSENSCHAFT, No 4, 1958, p 496.
6. Marx, Engels, op. cit., p 105.
7. H. Schieck, "Oekonomische Probleme der Erhoehung von Ertrag und Leistung in der Landwirtschaft" [Economic Problems Relating to Yield and Performance in Agriculture], KOOPERATION, No 9, 1979, p 417.

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CSO: 2300/295

AGRICULTURE

GERMAN DEMOCRATIC REPUBLIC

RESULT OF OPTIMAL NITROGEN APPLICATION TO 1985 WINTER GRAIN

East Berlin FELDWIRTSCHAFT in German Vol 27 No 1, Jan 86 pp 6-8

[Text] The higher demands on the complex and economical intensification in agriculture require a more strongly differentiated utilization of individual measures and their flexible incorporation into the total process of agricultural production. In the field of nitrogen fertilization this requirement was met more intensively in past years. Within the scope of extensive research work the basis was created for consistent utilization of the N(an) process in the production of winter grain, sugar beets, summer barley, silage maize and potatoes (Mueller and others 1983a, b). This made it possible to evaluate more effectively the existing inorganic soil nitrogen and to take it into consideration in calculating the first N-application. The further expansion of the research work to the total complex "Dynamic Nitrogen Supply of Winter Grain" then made it possible in the past years to make increasingly complex operative fertilization recommendations for winter grain, and these recommendations took into consideration a number of factors influencing the inventory and effectiveness of fertilization measures (Albert, 1982; Jauert and others 1983; 1984; 1985).

Here it is important to so organize volume and time of fertilization measures that the important yield components such as number of ears per square meter, number of grains per ear, and thousand grain mass are utilized to an approximately optimal degree.

Of decisive influence on the operative calculation of N-applications for winter grain is, beside consideration for the N(an) content of the soil, the number of plants per square meter and their development state, as it is made clear from the norms given in tables 1 and 2 on increases and decreases in first N-applications (Table 1, 2). Plant development in spring, especially, is already a result composed essentially of the interaction of soil fertility amounts, N(an) soil content from previous crops and mineralization and, to a large extent, of seeding dates, seeding volume and climate development.

Table 1: Increases and Decreases in First N-Application for Winter Grain Depending on Crop Density and N(an) Soil Content (kg/ha 0 to 60 cm)

Plant Number/square meter		Nan-Content (kg/ha; 0 to 60 cm)					
		under normal	normal	above normal , kg/ha			
wi-wheat	winter rye	normal		0-30	31-60	61-90	90
under 300	under 250	pl 20	pl 10	p/m 0	m 10	m 20	m 30
300-400	250-350	pl 10	p/m 0	m 10	m 20	m 30	pl
above 400	above 250	p/m 0	m 10	m 20	m 30	pl	pl

pl: In these cases the first N application should be delayed to FEEKES 5 (end of planting), or should be omitted when nan-contents are very high.

Table 2: Increases and Decreases in First N-Application for Winter Grain Depending On Development State at Onset Vegetation

plant development	too strong, rich		normal		too weak
no/shoots	many shoots				little growth
	above 5	above 4	2-5	2-4	below 2
wi.wheat	-	-5...10	-	0	pl 0...5
wi.barley	-10...20	-	0	-	pl 5...10
wi.rye	- 0... 5	-	0	-	pl 5...10

Table 3: Nan Winter Grain Process Results Compiled by Agro-Chemical Research Sector in Consultation with the Institute for Crop Feeding Jena 1983/85 (GDR)

year	below normal	normal	above normal
	%	%	%
1983	6.0	33.6	60.4
1984	5.9	36.5	57.6
1985	13.9	43.6	42.5

EDV Program for Site-Related Operative Recommendation of the First N-Application

In order to take into better and more effective consideration the large number of possible influence factors, the development of an EDV program for site-related operative recommendation of the first N-application for winter grain was begun in 1983. This program which is applicable for fund-related as well as optimal amounts of N-fertilizer takes into consideration factors of soil, plant type, phenology and meteorology which, because calculations were made 1 year ahead of time, could not be considered in the calculation of EDV fertilizer calculation according to DS 79. In this program, operative fertilizer recommendations for first N applications were calculated for 290 enterprises with 21 268 ha in 1984 and for 757 enterprises with 53 259 ha in

1985. Included in this calculation were all soil groups in the GDR except moor lands.

The basic conditions for determining the necessary amount of first N-application were very different in 1985. Depending on the previous 1984 crop and local weather conditions in the winter of 1984/1985, different N(an) contents were found in the soil in spring of 1985. Low N(an) contents were found especially on acreages with high 1984 grain yields. On acreages with hoed fruit and preliminary feed crops, however, N(an) contents were mostly normal or somewhat above normal. Compared with 1983 and 1984, total average amounts were lower (Table 3). The ratio of normally treated acreages was higher in southern bezirks.

Plant development was also varied in spring of 1985. Partially dry and unfavorable weather conditions in the fall of 1984 had had a negative influence on the fall growth of winter wheat and winter rye whereas there was, in parts, an above average growth for winter barley. Late planted crops generally had a bad pre-winter development.

In order to achieve highest possible yields it was therefore necessary to apply different N amounts at the first N application, and these amounts varied in part considerably from the EDV fertilization recommendations made the previous year according to DS 79. In field tests on winter barley the fact was confirmed that thin crop sets must be fertilized first in order to stimulate further growth (Table 4).

Whereas for fields with well developed crops of normal density optimal fertilization time spans were very wide, grain crops with this growth reacted to late N application with very strong yield decreases. Fields with too much density and, especially, with lighter soils suffered from lack of water already in May (dry period) and therefore produced in general lower yields.

A special feature in 1985 was on that better irrigated fields nitrogen applications in the middle of April resulted in part in considerable supplies and thereby also to yield decreases (Table 5). On both sites, but especially in Methau, stronger plant supplies resulted in considerable yield losses. The quick growth of plants that had had less nitrogen before caused by the immediate availability of relative high N amounts in conjunction with the warm weather in May can be considered the reasons for this development. On the other hand, nitrogen fertilizer applied from the beginning to the middle of May resulted in highest yields because the weather was exceptionally cool in June and, because of the above-normal N contents in these experiments, plants had not suffered from N deficiency up to this time period. These abnormal conditions of 1985 point out that, on the one hand, there are in individual cases possibilities of considerable deviations from the norm and that, on the other hand, the best date for first N application remains the time shortly before or at the beginning of vegetation, as it can be proven in the results of numerous experiments (Table 6).

Table 4: Influence of Nitrogen Application Date on Winter Barley for Initial Crops of Different Density in Loamy Sandy Soil in 1985 (Sproeda, Delitzsch County; SL 4D 33/30; Brand "Rubina")

Date of first application (80 kg/ha)	Density		
	normal dt/ha	thick dt/ha	thin dt/ha
2-15	57.0	53.1	59.8
3-15	55.0	50.0	58.4
4-15	59.5	52.0	53.2
5-15	49.8	45.5	34.8

Table 5: Influence of Nitrogen Application Date on Winter Barley Yield 1985 (First N-Application Bad Salzungen 80kg/ha, Methau 50 kg/ha)

Date of first of N-application	Yield dt/ha		Methau	
	Bad Salzungen (Sl 4V 32/31) Borwina	1 Supply	(L 4 Loe 70/63) Rubina	Supply
2-15	79.9	4.2	104.0	8.8
1-03	72.8	5.8	101.1	7.2
3-15	77.4	4.0	94.2	4.2
4-01	71.9	4.8	107.3	7.5
4-15	68.0	2.8	87.8	5.2
5-01	83.5	5.0	101.6	7.8
5-15	87.8	7.2	96.0	7.0

1: before harvest, note 9-1 (9 without supply)

Table 6: Research on Favorable Date of First Nitrogen Application for Winter Barley and Winter Wheat 1982 to 1984 (dt/ha)

Date of first N-application	Winter barley 42 tests		Winter wheat 36 tests	
	dt	rel	dt	rel
2-15	62.8	98	55.3	98
3-15	64.1	100	56.6	100
4-15	64.8	101	55.4	98
5-15	58.3	91	53.0	94

Table 7: Application of Operative Model for Winter Barley 1955 on Black Soil (Schafstaedt, L1 Loe 94/96) and Heavily Efflorescent Soil (Miesitz, LT 5V 44/30)

First N-application		Legal N-amount		Yield			
Schafstaedt	Miesitz	Schafstaedt	Miesitz	Schafstaedt	Miesitz		
				Irrigation		Irrigation	
				w/o	with	w/o	with
kg/ha	kg/ha	kg/ha	kg/ha	dt/ha	dt/ha	dt/ha	dh
1. N-fertilization according to different amounts and proportion of N-application (1)							
58	72	120	150	81.6	98.7	64.2	64.2
2. Fertilization according to EDV program for first N-application and nitrate quick test for additional N-applications							
30	95	70	205	90.5	98.4	74.1	72.3

(1) Application after many years of optimal application with consideration for N(an)

Table 8: Application of Operative Model for Winter Wheat 1985 on Black Soil (Schafstaedt L I Loe 94/96) and Loamy Sand (Sproeda, Sl 4 D 33/38)

1. N-Application		Legal N-amount		Yield			
Schafstaedt	Sproeda	Schafstaedt	Sproeda	Schafstaedt	Sproeda		
				irrigation		irrigation	
				without	with	without	with
kg/ha	kg/ha	kg/ha	kg/ha	dt/ha	dt/ha	dt/ha	dt/ha
1. N-fertilization according to different amounts and proportions N-application (1)							
44	30	125	110	90.5	93.2	69.8	75.1
2. N-fertilization according to EDV operative program for first N-application after nitrate quick test for additional N-applications							
50	70	90	160	92.1	103.3	73.8	77.2

(1) N-application after years of optimal application with consideration of N(an)

Supply Test Results--Basis of Calculation

According to supply test results such as N(an), soil plant density and plant development, the first N-fertilization is beneficial. Operative N-fertilization according to the EDV program, which is based on supply test results as the basis of calculation, was tried out in 1985 beside extensive practical field tests. This makes possible a direct comparison with a great number of different fertilization measures that also try to obtain optimal results.

In 1985 very high yields were achieved under field test conditions for winter barley (table 7) and winter rye crops (table 8). By applying different N-fertilization measures and balancing the first N-application, however, the four tests without and with irrigation did not result in the same optimal yields as those made in operative adaptation to the EDV program. Essentially, this is a result of the correct calculation of the first N-application but also, as the winter barley examples in Miesitz and the winter wheat in Sproeda show, a result of the total N amounts that could be adapted more effectively to actual needs through operative methods. On black soils highest yields could be achieved with very low N-applications for two types of grain because of high N(an) contents and continuous operative adaptation to actual need. Through operative fertilization measures it was therefore entirely possible to keep consistent inventory of winter grain. It also became clear that the demands made on stock surveillance are high. Absolutely necessary are an exact count of plant stock before the onset of vegetation and a representative sampling for N(an) determination as basis for first N-application, as well as the continuous performance of the nitrate quick test for additional N-supply of the stock.

Operative measurement of N-application for winter grain has the additional advantage that local, agricultural and crop production aspects such as soil content, seeding dates, humus balance, first and second preliminary crops, among others, are included in addition to exact counts and test data.

It is understood that highest yields are not achieved through N-fertilization alone. Other contributing factors are stable plant types or their stabilization through growth regulators as well as effective herbicide programs and the protection from the most important fungus sicknesses such as blade-break, mildew and ear sicknesses.

An important basis for the effectiveness of all intensification measures, however, are agricultural and crop production conditions. Consistent crop sequences with best possible humus balance are the best conditions for timely and quality-oriented seed furrows and time-appropriate seeding of individual types of grain. This, in turn, is the condition for good pre-winter development and good starting stock in spring, and this can then be consistently developed toward highest yields.

Summary

The complex intensification in agricultural production demands a consistent and differentiated utilization of the production factor nitrogen. In several years of research and tests the basis was created for operative calculation of the first N-application according to supply test data such as N(an) and plant development depending on several influence factors. The application of the EDV program in regard to first N-application on more than 50 000 ha has shown good results in agricultural production and field tests. Through consistent application of nitrogen very high yields were achieved under 1985 conditions. N-fertilization is a component of the total complex of intensification factors whose effective utilization is guaranteed only through correct agricultural and crop production methods.

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CSO: 2300/237

ECONOMY

GERMAN DEMOCRATIC REPUBLIC

NATURE OF SOFTWARE; PRODUCTION, IMPLEMENTATION PROBLEMS CITED

East Berlin WIRTSCHAFTSWISSENSCHAFT in German Vol 33 No 12, Dec 1985
pp 1772-93

[Article by Prof Eberhard Prager, Dr of Economic Sciences, Certified Economist, born 1929, director of the Institute for the Political Economy of Socialism, Academy for Social Sciences; CC SED; and by Evelyn Richter, Certified Sociologist, Dr of Economics, Certified Engineer, born 1950, senior assistant at the same institute: "On Acute Theoretical and Practical Economic Problems in the Production of Software"]

[Text] As key technologies, microelectronics and the modern computer technology developing on its basis are directly connected with the software.(1) For the flexible information-processing technology is made up of two equally important components: Hardware (equipment) and software (programs and documentations). These components must form an integral whole to make information-processing technology effective. The basic differences between hardware and software lie in the functions they have to perform in connection with the automation of information processing.

In the course of the development of information-processing technology, the efficiency-oriented function of software in the dialectical unity with hardware has become more and more pronounced. Whereas the most significant qualitative leaps in the joint development originated in hardware--i.e., in every new generation of information-processing technology--the impact of software makes itself felt in those phases in which the productivity of hardware can be maximized only through software, i.e. through the quality and diversity of the programs. Software thus predominates in the periods between the appearance of new generations of information-processing technology: For it is only through software that each generation's potential output can be tapped.

As a novel means of work, as an integral part of information systems and microelectronic products, software produces novel economic effects attributable to the specific characteristics distinguishing it from traditional products and means of work.

The Nature of Software from a Politico-Economic Point of View

In the technical literature, it has rightly been pointed out that the distinguishing characteristic of software lies in its being the informational element of the information-processing technology. But the author then asserts that information--as distinct from the means of information--represents the essence of software. "It goes without saying that software also has a material component, namely the means of information, but its essence is the information itself--information that ultimately is 'knowledge.'" Essentially, software is the directive stipulating how and when something has to be done so as to properly implement the overall process. Software thus is man's anticipated intent concerning the course of the process."(2)

Undoubtedly, software first of all is information, and that is to say processed information in the sense of knowledge about the processes and also in the sense of science--namely when a technically novel solution, a novel process, a novel product is algorithmically conceived. But this is by no means a complete characterization of software. If this were the only distinguishing characteristic of software, it would be identical with traditional results of intellectual-creative work--results obtained, for example, in project planning or research work. This is not the case, however. Software is distinguished by yet another characteristic, which is dialectically related to the aforementioned one. Only through taking into consideration this dialectical relation can one characterize and define software in politico-economic terms. In contrast to all other known products of intellectual-creative work, software is characterized by a specific material state imparting to it immediate production and work efficacy.

This specific material state of software is the program that is stored by means of data carriers(3) and thus can be employed as a working tool, as a software-actuating means of production. Only in this form can influence be exerted on the computer technology. In this form, software can be copied and used any number of times. As a constituent part of information-processing technology, which performs the informational, information-processing functions determined in advance by man, software is an active element in all phases of the reproduction process and in the automation of information processing.

If results of intellectual-creative or research work are presented in the hitherto appropriate form, e.g. in the form of a book, documentation, or research report, they cannot take effect in this form, their material existence notwithstanding. Only man as a reader and actor is able through his activities to materialize these work results. For results of intellectual-creative or scientific work to take effect in terms of production, there has to be a transfer phase, in which technologies or pilot projects can be tested. This distinguished the results of traditional intellectual-creative work from software, which exists already at the start of the test phase--i.e., before the completion of its own production process--in its specific, productive form, namely as a program stored on data carriers.

The intellectual-creative activity of traditional scientific-technological work is fixed in the product, in the process, in the technology, etc. But software--likewise a product of intellectual-creative work--operates directly

in the production or work process by activating and stimulating it in its capacity as materialized information. At the same time, software itself is a dynamic element, for it can be corrected, expanded, fleshed out, and brought up to date. Thus software differs from traditional results of intellectual-creative or scientific work in that it becomes functional as a means of work in the very process of its formation.

In the process of software production, this transformation is effected the moment the program is produced and transferred to the data carrier; at the same time, a direct connection is made with the means of work, the information-processing technology.

But software differs also from the traditional products of material production. In the material production process, each product--even products of the same type--must be produced as a material object. This is because these products are embodied above all by materialized labor. In software production, products of the same kind must likewise be made individually, but the share of materialized labor is relatively small. Above all, software products are the result of intellectual work--a result that need be produced just once and that can be used any number of times.

The dialectical connection of the objectively ideal substance of information in the initial phase of software production with its changed specific material--and as such production efficient--form, the software product, is the characteristic element and thus something fundamentally and historically new both in regard to the development of the means of work up to this point and in regard to the results of intellectual-creative work. The transformation of the result of scientific-technological work from an ideal into a material form results in research and production forming an integral whole in the process of software production; it gives rise to a new kind of production process. A product of intellectual work, software has become a key element of information-processing technology. Via software, the results of scientific and intellectual-creative work can speedily be translated into practice in all fields of social labor.

In a novel way, software releases man's creative potential in the production process, but also in other work processes: It transfers functions of mental work--in some degree even functions of intellectual-creative work--to technology. Even though this transfer intensifies the effects of human labor, software--and the process of creating it--demonstrate that man remains the primary productive force, even in the presence of modern information-processing technology. "Ultimately, it is the quality of education and the level of management work which determine whether or not the most advanced technology can be transformed into high-level economy."(4)

As a means of transferring functions of intellectual work to technical processes, software is technology; for software determines and implements the operational practices of information-processing technology. Analyzing the development of machinery and realizing that it consists of three essentially different parts--the driving machine, the transmission mechanism, and the machine tool--Marx described technology as well: "Technology reveals man's active attitude toward nature, the immediate production process of his life

and thus of this social living conditions."(5) So technology always embodies the process of joint action of man, means of work, and subject of labor and thus is integrally linked to economic effects. "Production technology is the joint action of man and some means of work in the fashioning of the subject of labor into a product or functional component in accordance with the laws of production."(6)

In regard to software, these insights on technology lead to the following conclusion: As the classical machinery has gained a fourth component--the information-processing machine--the combined action of man and the means of work in the forming of the subject of labor proceeds in two stages. Firstly, it is necessary to regulate the technical operations of the machine and the combined action of its four different components without any direct intervention by man. The requisite "instructions" are given by man by means of the software. Functioning in this way, software as a technological directive regulates all operations within the machine. Secondly, through execution of specific operations the machine must act on the given subject of labor. The software contains these instructions as well. In this case, the software represents the technological directive for specific technologies designed to form the subject of labor, to accomplish a specific task. Together with the hardware and the process technology, software as a means of work acts on the subject of labor. In this way, software operates as technology and thus transfers the resulting scientific findings to the production process. Software imparts to technology a historically new form of operational effectiveness. These two functions of software are reflected in the basic types of software and in their utility value.

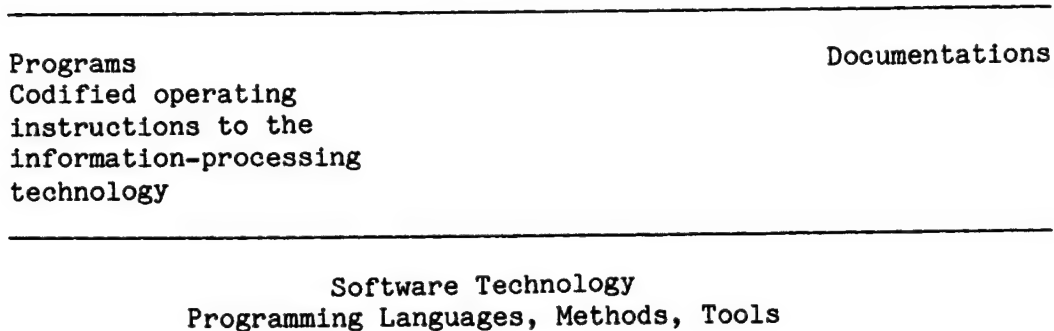
Nevertheless, software is more than production technology; it can implement not only technical production processes, but also processes in the nonproduction sectors and formalizable processes of intellectual work.

According to the present state of knowledge, the concept of software--considered in politico-economic terms--could be defined as follows: Software are the specific programs and documentations for the utilization of information-processing technology (for process automation). Software is an integral part of information-processing technology and is used for transferring functions of man's intellectual work to technical processes. Software is a product made in a production process in which science and production form an integral whole. Under socialist production relations, software is systematically produced and materialized as a commodity; it has a value and a utility value. Being primarily a product of intellectual-creative work, software is distinguished by a high degree of refinement; codified in material form as a program on data carriers, it can be copied and used any number of times and directly affects both labor and production. Like hardware, software is a means of work. Software renders possible the immediate transfer of scientific results to the production process, to all phases of the social reproduction process, and to the nonproduction sectors; it thus is a connecting link between science and production, between science and all fields of social labor. Being easily interchangeable, correctible, expandable, and brought up to date, software is a highly dynamic element of the national economy's material-technical basis and as such it determines the flexibility of technology.

Software Components

The term software thus denotes programs designed to utilize information-processing technology and all incident documentations. An integral part of software are the components of software technology such as programming languages, tools, and methods (see Illustration 1).

Illustration 1. Software Components
Software



The development and production of software technologies is part of the costs of software and affects its efficiency. For a differentiated analysis of software, however, it is necessary to make a distinction between two different types of software, namely system-oriented and problem-oriented software.

1. System-oriented software or basic software for micro-computers organizes the operations within the operation-processing machine and assists the operator.

2. Problem-oriented software implements user programs. This category comprises programs distinguished by a high degree of generality; they also go by the name of standard user software or basic user software and also include the specific user programs.

Data bank, communication, and video display terminal software is called system-related software (see Illustration 2).

There is an extraordinary variety of software, and regardless of the particular problem to be solved, utilization of information-processing technology requires employment of all types of software. Basic classification--into system- and problem-oriented software--is indispensable for further theoretical analysis of the software problem, since these two types perform different functions in the utilization of information-processing technology; this is the most promising approach in regard to management, planning and promotion of software production and application. In particular, the following economic objectives are of significance here:

--Ensuring the most efficient and most effective organization of the specialized processes of software production. In order optimally to make use of the scientific-technological advances and the requisite subject

matter expertise, the various types of software must be produced in places offering a high degree of concentration of cadres and computer technology;

--ensuring and controlling the qualitative improvement of software by means of systematic measures such as determination of quality criteria in accordance with the software type in question;

--systematic standardization in accordance with the classification of software types. This facilitates not only the standardization of the respective software products, but also that of the points of intersection;

--development of a coordinated system of evaluation of software production and its results, with due regard to the various effects on the reproduction process;

--encouragement of efficient methods of software production in the respective areas of responsibility and promotion of a software product development oriented toward multiple utilization.

Illustration 2. Types of Software and Some of Their Principal Functions Software

System-Oriented or Basic Software			Problem-Oriented Software		
Control Programs	Translat. Programs	Service Programs			
			System-Related Software	Standard User Software	Specif. User Software
Task planning and control	Machine-oriented languages	Loading Testing	Software operating mainly peripheral technology: Display screen software	Highly generalized programs from all technical fields: Economic calculations; mathematics; process control; process analysis; simulation programs; production control;	Software applicable only to individual products, technologies etc. and used both in special-purpose and universal systems; in universal systems,
Input output organization	Problem-oriented languages	Preparation of programs	Software for data transmission systems		
Communication with the operator		Equipment testing and error diagnosis	Data bank software		

data evaluation and error handling	input and output	numerical control with high multivalence programs for data evaluation	it complements standard user software
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There is an extraordinarily close connection between problem-oriented software and what is called orgware.(7) The term orgware denotes the organizational solution to the deliberate, planned application of information-processing technology in the reproduction process. It is an essential prerequisite for efficient software production and utilization: For it is through orgware that the complex interaction of the operational processes is predetermined and that the overall demand for software, e.g., for a flexible automation system, is established--qualitatively as well as quantitatively. Among other things, orgware determines to what extent available software products can be utilized repeatedly. Together, orgware, hardware and software form information-processing systems.

Creation of Software--a Production Process

At present, different terms are used for software production in the technical literature and in scientific discussions (e.g., "software development," "software production," "new acquisition").(8) Frequently, a distinction is made between development and production of software. The term "development" denotes the intellectual-creative effort expended to obtain a scientific-technological result, while "production" denotes merely the copying of the data carriers. Development of software is subject to the mandatory regulations of the Science and Technology Plan index of work stages (E-stages) and it is financed through the Science and Technology Fund. This substantiates the above-mentioned claim that production of software denotes only the copying of the data carriers. One may question, however, whether this approach does justice to the nature of this process. The problems arising in the combines in connection with software planning, accounting and financing clearly indicate that this is not the case. Analysis of the software production process shows that software is a qualitatively totally novel product and that it is created in a production or work process in which research and production form an integral whole. The novel quality of software as a product and a means of work is reflected in the novel quality of the production process.

The terminological differences in regard to the software production process derive primarily from its characteristics, which are indeed at variance with the traditional definition of the production process--above all that of the big machinery. Only the copying of data carriers could be claimed to be comparable to traditional production processes. But in contrast to traditional products, production of several pieces of one and the same software product does not constitute the production process proper. The multiplication of the software product is a final production sub-process which is contingent on demand, but does not represent an essential element of software production. The basic element of software production is development

of the documented and reproducible program, comprising the following operational stages: Drafting, implementation (programming), and testing.

To realize that the definition of the software production process as a process comprising no more than the copying of the data carriers is untenable, one need only picture a program of which just one copy is needed: One thus would have a material product that as a constituent part of the information-processing technology is serviceable as a means of work and immediately effective in the production process without ever having been produced. It also is obvious that the utility value of software originates not in the copying process, but in the operational stages preceding it.

Analysis of the production of software reveals the substance and the nature of this process and also the characteristics distinguishing it from traditional production processes. The production of software shows all the classical features of a production process; characteristically, its final result is a material product, a material utility value that can also be produced as a commodity. The production of software is an integral part of the socialist production process and its social characteristics are those exhibited by any of the other production processes in Socialism. Besides the formulation of the objective and the utilization, it is the third phase in the service cycle of a software product (see Illustration 3).

Illustration 3. Phases in the Service Cycle of a Software Product
Task

Production

Utilization

The production phase comprises the operational stages and results shown in Illustration 4.

Illustration 4. Software Production--Operational Stages and Results

Drafting
(Algorithm)

Implementation
(Program)

Testing
(Program tested and
documented)

Substance of the Service Cycle Phases of a Software Product

The formulation of the objective--the first phase of a software product's service cycle--comprises specific data concerning the results the software is expected to produce and the conditions to be observed. This phase is closely

linked with the first operational stage of the production process--the drafting and it consists almost exclusively of intellectual work. The important decisions made in this phase have an effect on the cost and duration of the software production process, not to mention the predetermined effects concerning the utilization of the software.

In this formulation phase, it is also decided whether the software production process will comprise scientific work--i.e., creation of a new algorithm--or whether "only" intellectual-creative efforts will be expended (e.g. by establishing algorithms and programs for available general solutions).

The draft, the establishment of the algorithm--i.e., the logical breakdown of a process into its constituent parts and stages and the identification of all operative conditions and influences, including the respective variants--is a process of intellectual, intellectual-creative, and also scientific work. This work is very demanding and time-consuming. The effort required depends on the degree of complexity and the scope of the problem to be solved. And the range of problems encountered in economic practice is extraordinary, comprising both simple and complex tasks. The algorithm comprises detailed data on all essential parts of the program to be developed for the computational solution of the problem, including the sequence of operational steps. The mathematical models developed in the analysis of the problem are a key element in regard to the establishment of the algorithm.

The formulation of the objective and of the draft represents the intellectual anticipation of the processes to be developed or automated for any phase of the reproduction process. Marx considered this to be characteristic of human labor: "What distinguishes the worst architect from the best bee is the fact that before actually building a cell out of wax, he has built it in his mind." (9) But there are other, more momentous aspects to this mental anticipation. The algorithm does not merely mentally anticipate the process to be automated: Rather, it determines to what extent the economic and scientific-technological laws are utilized in practice in accordance with the latest scientific findings. The algorithm's scientific level determines the quality and efficiency of the work process automation and the effectiveness of the programs under varying conditions. Strictly speaking, the software anticipates the subsequent production result in two ways: Firstly, the way any production result, any product of a specific utility value has to be anticipated, and secondly, by anticipating and programming the production process. Thus it is primarily the qualitative level of the algorithm which determines the subsequent products' effectiveness.

The implementation, i.e., the conversion of an algorithmically formulated problem into the program's sequence of commands, is accomplished essentially through living labor, through intellectual-creative work calling for the greatest possible accuracy, including mastery of the selected programming language. Any error may lead to false steps in the automated process. The problem prepared and programmed is to instruct the computer as to what activities have to be actuated and recorded for a comprehensive process to run through all of its stages toward the desired objective.

Once the algorithm has been converted into the program, there follows the materialization on a data carrier. This is an indispensable, if not the most important part of software production. It also involves expenditure of materialized labor.

The next operational stage is the testing. What with the extensive mental effort and the frequently very complex interconnections, logical and syntactical errors in the development of the program are practically inevitable. This is why this operational stage, which is executed with the aid of computers, is indispensable. For new complex algorithms, the test phase is of necessity of longer duration. Besides living labor, materialized labor in the form of computers is used in the test phase. Each program requires a documentation which is to help the user to get to know the program and which is indispensable for the developer as well. The preparation of qualitatively adequate documentations is handled by the developer himself. The input of living labor is considerable in this respect. Programs containing their own documentation, which during the run provide the necessary explanations concerning the process and the program's capabilities, are initially more costly; but since they reduce the cost of documentation and are more user-friendly, they are generally more productive.

This brief outline of the operational stages linked to the software production phases is to highlight the extremely large share of living labor--above all intellectual-creative labor--that is required here. This characteristic is intensified by the presently low degree of mechanization of software production. According to the practical experience gained so far, the average time share of the individual operational stages can be assessed as follows: Formulation of the objective, drafting, and implementation: 20 percent each; testing: 30 percent; documentation: 10 percent. The effort required in the testing and documentation stages is frequently underrated. Shortcomings in connection with the formulation of the objective may result in grave programming errors; and slipshod work at the documentation stage may not only complicate utilization of the program: In the event that the program user is not the producer, the program may even be unserviceable.

In the service cycle of software products, the production phase is followed by the utilization phase. Standing for actual utilization, this term also denotes all processes safeguarding utility, namely maintenance processes such as error detection, revision, rationalization, or expansion.

The Current Techno-Economic Level of Software Production

The means of work that man has been using in producing his foodstuffs and consumer goods naturally were and are created in a production process. To be sure, the production of qualitatively new means of work was initially always characterized by a lower level of mechanization in comparison with the production these means of work rendered possible at a later stage. From this fact, Marx drew the following conclusion in regard to the industrial revolution: "Large-scale industry thus had to get control of its characteristic means of production, the machine, and had to produce machines by means of machines. Only in this way was it able to establish an adequate

technical foundation and to become independent."(10) Viewed in these terms, software is not yet independent. But the course has now been mapped.

In the international arena, software production is among the productive forces distinguished by a high rate of development. "We have to keep up with this process, if we want to step up our own rate of development and to reach the requisite level of labor productivity."(11)

With the exception of the testing stage, software production in the GDR is for the most part characterized by an absence of technical equipment. Individualized modes of operation predominate at all production stages. In the course of technical advancement (promising first steps have already been made), the substance and nature of this work process will gradually be changing. At computer-equipped work stations, software will be produced with the aid of program banks. The division of labor and specialization in software production will be intensifying, and the requisite cooperation relations will be extended.

As software production reaches a higher level of mechanization, labor productivity increases and there develops a higher form of production organization. While advances in the development of software technologies, programming languages and standardization are furthered by the higher level of mechanization, these advances in turn are a key prerequisite for a further rise in the production level, which is also reflected in the increased input of materialized labor. Gradually, new possibilities are crystallizing in regard to an objective evaluation of software production.

In spite of this incipient development, software production will always require a large share of intellectual-creative work, because the comprehensive intensification of production necessitates development of new processes or processes set up in a new way. While the advances in organization and mechanization reduce the individualized nature of this production process, they do not by any means eliminate it.

If the production process is viewed--in accordance with its most basic substance--as a work process, as a metabolic process between man and nature, it presents itself as the action of manpower aided by some means of work on a subject of labor with the object of producing utility values. In spite of the extraordinary share of living labor--and of intellectual-creative labor in particular--the same situation prevails in the production of software. To a high degree, software production manifests the active role of manpower as an "enlivening fire" (Marx) in the work process. Whereas the analysis and logical breakdown of the current process or the process to be developed represents exclusively intellectual-creative work, the materialization of the work results in the program and their transfer to data carriers (including the testing) is impossible without materialized work. As he analyses, purposely develops and controls a process in accordance with the most favorable conditions, man interferes with nature. He utilizes the automation of information processing for the process of his confrontation with nature.

Software has become a factor in man's confrontation with nature; on the one hand, it serves to satisfy the need for information, information-processing,

and information in all phases of the reproduction process, and on the other hand, the need for the production of material goods--both producer and consumer goods--that are essential for the existence and development of society.(12)

In the production of software, the work process is in a sense a process of appropriating nature for the purpose of satisfying man's needs. In this process, utility values are created that enable man most efficiently to apply a new type of means of work. This represents more than a significant development of productive force: Man has largely transformed his work process; through extensive automation, he is changing his position in the production process.

All these facts show that the process of software production is a production process, irrespective of its level of mechanization and its distinguishing characteristics. To consider it just a way of producing a scientific result is to fail to see the true nature of this process: In a scientific work process, there immediately materializes a result that can be directly utilized as a material service value. "The terms production and technology have been employed deliberately here, because programming has long ceased to be an intellectual outlet for individualists: It has turned into a multistage process distinguished by diverse peripheral factors and supposed to be controlled by scientific management. Only on the basis of such a fundamental position will it be possible to keep up with hardware development. It is imperative--if only because of the innovation rate of microcomputer technology--that labor productivity in the field of software development be increased by at least 50 percent. Otherwise we would be confronted with the problem of having at our disposal unusable (but expensive) computer equipment."(13)

Regarding the intersection of research and production in the software production process, one can only say that during the formulation of the objective a decision has to be made as to whether or not the draft is to represent a scientifically new solution. The draft thus may be the result of research work. In regard to their share of intellectual-creative work, the other stages of the software production process can be compared to scientific-technological work processes, e.g., project planning and construction. The crucial difference between software production and research results or results of scientific-technical work lies in their production-related effectiveness. In conformity with the E-stages [developmental stages], all of the work stages belong to the software production process which is distinguished by the fact that it combines science and production, thus creating the material utility value. This clearly represents a superior type of production--a type characterized by integration of scientific-technological work processes. This development is apparent in other fields as well, e.g., in biotechnology (new cultures have a direct impact on the production process). This does not mean, however, that this superior type of production can dispense with research. Research here precedes the software production process as defined above; among other things, it is concerned with the development of tools. As is the case in all other production processes, the points of intersection are found in the transfer stage.

The software production process results in material products that are means of work and thus are "not only a result, but also a prerequisite of the work process";(14) bound up with this is the fact that these products have a utility value. It is its material existence and production-related effectiveness which distinguishes software--as a product of intellectual-creative work--from all other results of scientific work.(15) At the start of the test phase, i.e., before the completion of the production process, software is present in this materialized, production efficient form. As a product, software is characterized by the fact that it is produced through a process in which science and production form an integral whole. Software thus belongs to the category of most highly refined products.

The Utility Value of Software

Being part of the economic reproduction process, software production in the socialist society is commodity production. Consequently, any software production process represents a combination of a work process and a value-forming process, and software as a product has to have both a value and a utility value.

Software production is a work process producing--like any other work process--utility values that enable people efficiently to utilize a new type of means of work. To determine the utility value of software, one must fall back on the utility value definition advanced by Marx: "The use value of an object derives from its utility. But this utility is not something suspended in mid-air. Being contingent on the properties of the commodity body, it cannot exist without this body. Thus, the commodity body, e.g., iron, wheat, diamond, etc., represents a utility value or asset."(16)

The utility of software lies in its capability of utilizing the information-processing technology to solve user-related problems. Essentially, this utility consists of two components. Firstly, software serves to improve the efficacy and user-friendliness of the information-processing hardware; it is a means of work designed to render effective the information-processing equipment and to facilitate its use. This component is represented above all by the system-oriented software. Secondly, software serves to solve user-related problems such as efficient and scientifically sophisticated development of processes and products, or preparation and processing of diverse information. This component is identical with the utility of information-processing technology as a whole; it is only through software, however--in this case through problem-oriented software--that the utility is realized. This utility imparts to software its use value. Essentially, this utility value represents information materialized on a data carrier and used to control processes.

The various characteristics of the utility value as an economic category are fully applicable to software.

1. Software has utility, because without it the information-processing equipment cannot be used and the equipment's utility value cannot be realized.

2. This characteristic makes software a constituent element of social wealth. The greater the availability in socialist society of usable programs, the greater the diversity of ways of using information-processing equipment toward effective development and execution of various processes.

3. The utility value of software determines its exchange value. The utility value of software is a prerequisite of social recognition of the labor expended. Without utility value, software is valueless.

4. The utility of software can be established only in the process of application.

5. In principle, the utility value of a software product is established (both qualitatively and quantitatively) through its existence, i.e., it is given. As regards concrete valuation--more precisely, establishment of standards of valuation of the utility value quantity and quality--there are at present a number of problems. Data concerning the scope and complexity of the problem to be solved, the reliability and accuracy of the programs, and other quality indicators may serve as valuation criteria.

Valuation of Software

The value of a commodity always embodies social labor; in Socialism, it embodies the social labor of associated producers of goods. The commodity value represents a social relation. Since the value is human labor fixed in the commodity, the characteristics of socialist labor also determine the value's social nature. This fully applies to software as well. But the novel quality--above all the special characteristics--of the software production process and its product give rise to a number of problems in connection with the value of software.

The main theoretical problem in this respect is valuation. The fact that this politico-economic problem has not yet been definitively solved is reflected in operational practice, e.g., in the pricing of software products, in the application of cost accounting, and in the efforts to provide incentives for top performance in software production.

The value of a commodity is determined by the quantum of socially necessary labor, and the standard applicable is the socially necessary working time, i.e., the "working time required to produce a utility value on the basis of the prevailing normal social production conditions and of the average social degree of work skills and intensity." (17) In another passage, Marx stated that as a result of technical progress the value becomes a dynamic quantity and that for this reason the input required for reproduction is a crucial factor. "The value of any commodity ... is determined not by the working time it contains, but by the socially necessary working time required for its reproduction." (18)

The complexity of the problem lies in the fact that as yet the value cannot be calculated on this basis and that there is no known way of reducing complex to

simple labor. Nevertheless, the present study will define and put up for discussion the conditions concerning valuation of software, because an analogous situation prevails in regard to cost planning and its utilization for software pricing. First of all, we will summarize the most important, universally valid factors that affect the socially necessary labor underlying the products.(19) The factors include:

- the level of social labor productivity. The higher the social labor productivity, the lower the value per product;
- the total expenditures of all producers. The value is determined by all producers' total expenditures on the production of the respective product. The value does not represent a simple average, however; rather, it is determined under the objective conditions prevailing in the enterprises that produce and sell the bulk of a given type of commodity. In certain cases, the value is determined by the most unfavorable production conditions;
- social demand and the incident distribution of the total social labor among the individual sectors of the national economy. The impact of demand on the socially necessary labor and thus on the value is indirect rather than direct. If production exceeds demand, however, society recognizes as socially necessary only that labor which is required for meeting demand. "Since the demand structure affects the realization of the value contained in the commodities, accurate and systematic consideration of the realization conditions is extremely important in regard to determining the input of socially necessary labor under Socialism."(20)

On the basis of these universally valid factors, one can say in regard to valuation that the novel quality of the product called software entails a few modifications. This thesis is supported by the following considerations:

1. Each software product is essentially unique. Once it has been produced, it exists and can be used any number of times. Generally speaking, it is economically untenable to develop another program for a process model that is already available in software form, and in terms of science, it would make sense only if a new, better solution can be effected. But this would mean a new, different product as well. The expenditure on the software product, i.e. the input of intellectual and intellectual-creative labor, is required only once. This expenditure does not require reproduction.
2. A software product can be copied any number of times. The materialization on the data carrier is accessible to any user. The incident input of living and materialized labor becomes part of the value. This input is insignificant, however: In one particular case, it amounted to less than 1 percent of the total input going into the programs examined.
3. In his reflections on value, Marx expressly included demand. On account of the polyvalence of software--i.e., its capability of being used more than once--these reflections are of great significance in regard to the valuation of software. Even though the value derives from expenditure rather than from demand or utility, demand nevertheless has an indirect effect on value. In connection with his analysis of market value and market price, Marx wrote: "As long as we were discussing only individual commodities, we could take for

granted the need for this particular commodity (with its quantum included in the price), without going into the quantum of the need to be satisfied. This quantum becomes a crucial factor, however, once the product of an entire production sector is on one side, and social demand, on the other. Under these conditions, it is necessary to consider the measure, i.e., the quantum of this social demand." (Italics by the authors.)(21) And in another passage, Marx emphasized: "For a commodity to be sold at its market value, i.e., at a price commensurate with socially necessary labor it contains, the total quantum of social labor expended on the total quantity of this kind of commodity must be equivalent to the quantum of social demand for it."(22)

In regard to software production, this means that if a product can be expected--in conformity with the plan--to be used more than once, all instances of utilization must be taken into account in the valuation. The cost of the copies and of the projected number of data carriers should from the first be included. The value of a software product thus is always determined by the expenditures necessary for producing it, with due regard to the projected number of applications. From the logic of economic processes and from this analysis, one can conclude that the software product value obtaining for one instance of application is inversely proportionate to the number of applications. Consequently, it is necessary to make a distinction between the value of the software product and the value share of one instance of application.

This finding is corroborated by the fact that the value's social nature derives from the characteristics of socialist labor. The conformity to plan is one such characteristic. Just as the plan serves to improve labor productivity and to raise the scientific-technological level of production, thus affecting value, so does, analogously, well-planned multiple use of the software.

Not to take into account in the valuation of software its projected repeated use would mean to violate the socialist nature of the social relation reflected in the value. That present capitalist production practice follows a different approach is a concrete reflection of the fact that the value represents a social relation, that the objective of production under capitalist conditions is maximization of profit. Under capitalist conditions, the aspect Marx wanted to eliminate in connection with value-based commodity exchange applies precisely to software products: "thirdly, as far as sale is concerned, that no natural or artificial monopoly should enable any of the contracting parties to sell something for more than its true value or force it to sell it off for less."(23) For lack of good programs, sale for more than true value is presently the rule under capitalist conditions.

Regarding the valuation of software products, what conclusions can be drawn from these theoretical considerations?

--The crucial factor in regard to valuation is the cost of production. The cost of reproduction is relevant only in terms of theory.

--It is imperative that in valuation the projected multiple use of the software products be taken into account. Since the conditions governing

repeated use of software vary greatly, the situation in this respect is quite complex. Whenever the plan provides for multiple use of software products, the labor expended on the production of the software solution should be brought in relation to the presumable number of applications. This applies to almost all of the system-oriented and system-related software. The maximum number of applications can be estimated on the basis of the projected volume of hardware production. To what extent software might be used in excess of the hardware sales volume, e.g., as a result of export, with the number of applications rising accordingly, would have to be determined on the basis of practical experience. This goes also for the sale of hardware without software. In this case, the number of software applications would be reduced.

--As regards standard user programs, the situation concerning consideration of multiple use in connection with valuation is far more complex. On the one hand, one may assume that standard user solutions for certain products, e.g. for one- or multi-story multiple-purpose buildings, will be used over and over; consideration of the objective, of the type of user, or of the plan targets concerning multiple use (such as the targets at the research center of the "Fritz Heckert" Machine Tool Combine) may provide a basis for estimating the number of applications; as to standard user programs for general scientific processes, macroeconomic calculations, or mathematical procedures, which will attract a large number of users, the--presumably great--extent of multiple use must be estimated (on the basis of practical experience) for an assessable period. On the other hand, there are many standard user situations, e.g. payroll or material accounting, where the differences between the various enterprises and combines in regard to the organizational approach to certain economic processes preclude extensive application of a single standard user program. Even in such cases, however, it is possible to make an informed estimate concerning the number of applications in a certain period. Even if the plans cannot cover the extent of repeated use, valuation of standard user software should always make allowance for multiple utilization; after all, the very classification as standard user software presupposes multiple use.

--As regards specific user programs, their nature precludes multiple use, except for special situations. Cost planning should assume the program to be nonrepeatable and thus make allowance for just one instance of utilization.

--Another problem in regard to the valuation of software arises in connection with the socially necessary costs. There are great variations in regard to the capabilities of the analysts and programmers, but also in regard to the equipment of the software producers and the quality and scope of the available information systems and data banks. Accordingly, there are variations in regard to the time expended on the production of software and in regard to the quality of the programs. These variations certainly could in time be reduced through more powerful equipment, more efficient methods, greater knowledge, and more extensive experience, but they cannot be eliminated. Since the demand for software presently cannot be met, one must realize that the costs incurred under the most unfavorable conditions are the determining factor in regard to the valuation of software. Since

there are as yet no useful standards concerning software production quality and since on account of the programs' singularity no relative valuations are available, there can be no doubt that valuation must make allowance for all of the individual input. The drawback of this procedure lies in the fact that to a large extent quality work is not rewarded, except in the form of fewer complaints by the user. This situation could be remedied through systematic registration of the expenditures for every single software product and of the experience gained and the errors detected over an extended period of utilization. Thus one could gradually establish definable and assessable criteria for the quality and quantity of the labor input and of the products. The gradual reduction of the individualized character of software production--a reduction brought about by advanced procedures and improved mechanization of the process--is likely to facilitate establishment of such criteria.

Proceeding from this theoretical analysis of software valuation, we will put up for discussion certain ideas concerning improvement of management, planning and cost accounting in the field of software production.

Improvement of Management, Planning, and Cost Accounting in the Field of Software Production

From the fact that software production is a new type of production process distinguished by certain characteristics, there follow a number of considerations concerning improvement of management, planning, and cost accounting. We will discuss in detail three complexes:

1. Software is a product and has to be considered as such in planning and accounting.
2. Software is a means of work and has to be included as such in basic assets management.
3. As regards valuation of software that in conformity to plan is produced and sold as a commodity, it is necessary to take into account the value-determining factors including the projected multiple use.

Regarding these complexes, a distinction has to be made between the consequences for the producer and those for the user of software:

Consideration of software production as a production process entails the necessity to consider software a productive job, a part of commodity and net production, and it is irrelevant in this respect that on account of the large share of intellectual-creative work this production is best carried out in a scientific combine establishment. As is the case in all other production processes, this includes cost-related financing. For every product, the actual costs incurred should be broken down by cost type so that even costs incurred at a later date, e.g., costs of after-sales service, compensation, and maintenance, can be recorded by type of product. The profit realized from proceeds (in excess of refunded costs) would have to be shown separately for the software production in its entirety and for every single product so as to allow profitability calculation for either category. Free exchange or giveaway of software hampers inclusion of software production in cost accounting and is detrimental to the producers concerned. It goes without

saying that even if software is given away free of charge, the producers are obligated to honor warranty claims. The requisite funds would have to come from sources unrelated to software production.

From the standpoint of the software user, acceptance of software as a means of work likewise entails far-reaching consequences. From this point of view, any acquisition is first of all an investment. As regards acquisition of hardware, this is a matter of course and there is no reason to view software any differently. If the software producer is the user as well, the situation is the equivalent of local manufacture of means of rationalization. Management-related considerations likewise suggest that local manufacture of software should be dealt with the same way as local manufacture of means of rationalization. Acquisition of software may be financed through the depreciation fund, the performance fund, a loan, or allocation of state funds.

If software is considered a means of work, it should be assetized as part of this category. To be sure, the particular nature of means of work, i.e., the fact that they are above all products of intellectual-creative work, necessitates differentiated accounting and specific funds. Software is subject not to material wear, but to obsolescence, and the rate of obsolescence depends not only on the type of software, but also on the substance of the process embodied by the software program. New findings and also new legal regulations or revisions of regulations may necessitate modifications. Thus, for the time being varying rates of depreciation for obsolescence should be established on the basis of empirical data. Obsolescence of software may also be occasioned by the introduction of new hardware models.

As has been mentioned above, errors may crop up in program runs and modifications may be required. Since under present conditions the software producer recovers through the sales price all individual expenditures, special care should be taken to prevent slipshod production work; one could consider holding the producer responsible for all errors the user encounters in running the program and obligating him to offer warranty service or, if need be, compensation. Since this practice is quite common, such expenditures do not affect the user.

The other current expenditures on program service--e.g., expenditures resulting from legal regulations--are defrayed by the user, irrespective of who carries out this service.(24) Being service costs, they should be financed through a special fund incorporated in the user's maintenance fund. Maintenance costs that represent a utilization of new scientific findings for the program must likewise be defrayed by the user. Some of the funds derived from depreciation could be used for this purpose. Depending on the nature of the modification, these can be value-maintaining or value-forming expenditures. Improvement of program quality and/or an increase in the utility value result in newly created value.

It is advisable to set up--as part of the documentation--a "software log" on which all expenditures incurred during utilization of the program would be

recorded. Such a log would provide important information on the quality of a program over its entire service life and on the quality of the work performed by its developer.

In the GDR, pricing of software products presently takes various forms. The following variants are common:

1. The prices of system-oriented software are fixed by the hardware producer on the basis of actual costs, irrespective of multiple use.
2. As regards contract production of problem-oriented software, real cost prices are quoted.
3. For prototype models of problem-oriented software for a relatively well-defined group of users, a real cost price is quoted that takes into account the extent of utilization.
4. As regards successful software products exchanged among the combines as means of rationalization, pricing alternatives range from real cost price to free giveaway.

The ideas concerning valuation of software products could be applied as well to software pricing. On principle, one would have to start from the actual production cost of a program. Planned repeated use of programs must be reflected in the domestic market price in accordance with the probable extent of utilization. This would also keep the price of information-processing technology from rising too high on account of calculation of total software expenditures, which could result in some applications getting scratched and in distorted efficiency calculations concerning utilization of the information-processing technology.

Since planned repeated use of software--as against a single instance of application--always entails additional expenditures for the producer, it is necessary to find a way of making repeated use economically attractive: One could consider establishing different rates of profit for software products used repeatedly and products used only once. But such a bonus should be made contingent on documentation and registration of the software with an appropriate program bank; mandatory registration would thus be based on an economic incentive as well. For multiple-use programs, one could possibly consider charging user fees for a certain number of applications. This would promote program service (by the producer, or in program libraries) and provide an additional economic incentive for the producer.

In connection with these ideas concerning pricing of multiple-use software, one should always bear in mind that multiple use will be promoted only if it is economically attractive to both the producer and the user. For the producers, there is at present hardly any incentive, since the technical royalties for all instances of utilization may not exceed 100 percent of the expenditures on software research and development. For the user, utilization of acquired software should be economically more attractive than any production of software of his own, the cost of adaptation notwithstanding.

Further development of the productive forces will progressively raise the qualitative and quantitative standards of software production. The further socialization of production and work in this field must be systematically organized so as to ensure through high product quality (including an extensive multiple-use capacity as a quality-improving factor) a high degree of efficiency in both the production and the utilization of software. These requirements can best be met through establishment of software production capacities in accordance with the principle of expert knowledge. This means that software should be produced in areas distinguished by the availability of subject-matter expertise. Thus, it is obvious even today that every combine should have at its disposal software capacities of its own and that the technical experts have to broaden their knowledge of programming and software production. "In all combine enterprises producing means of rationalization, we now need competent and productive groups to advance the utilization of microelectronics and the development of pertinent programs for the users. The most competent cadres--whether experts or young graduates--are what is needed here. Their work has to meet the highest standards, for we cannot afford to lose any time."(25) For all combines, enterprises, and institutions, high-quality software production is going to be a key factor in regard to improvement of production efficiency.

FOOTNOTES

1. See E. Honecker, "Observations on the Preparations for the 11th SED Congress," in: "10. Tagung des Zentralkomitees der SED" [The 10th Session of the SED Central Committee], Berlin, 1984, p 31.
2. W. Marschall, "Utilization of the Efficiency Potential of Scientific-Technological Progress in Intensively Expanded Reproduction," WIRTSCHAFTSWISSENSCHAFT, No 9, 1982, p 1307.
3. The term data carrier comprises punched tape, magnetic tape, diskettes, and microelectronic storage elements.
4. See "10th Tagung ...," op. cit., p 35.
5. K. Marx and F. Engels, "Werke" [Works], Vol 23, Berlin, 1956, p 393 (footnote).
6. G. Schulz and W.G. Marachow, "Structure and Development of the Productive Forces in the Socialist Society," (Review), WIRTSCHAFTSWISSENSCHAFT, No 8, 1973, p 1243.
7. See W. Huebner et al., "Microelectronics--Development of a New Technology and Comprehensive Intensification," WIRTSCHAFTSWISSENSCHAFT, No 7, 1984, p 991.
8. In this connection, Margit Falck states: "Creation of operational processes and establishment of a methodical procedure are essentially constructive activities, whereas preparation of methodical elements or methods in the form of closed modules is an evolutionary process based

on scientific research. For this reason, for the program production phase the present study uses the terms 'preparation' and 'creation' rather than 'program development', a term frequently encountered in the technical literature." (M. Falck, "Problems Concerning Multiple Program Use in Automated Information Processing, With Due Regard to Conditions in Biomedical Research," Dissertation, Berlin, 1983, p 98.

9. K. Marx and F. Engels, "Werke," op. cit., p 193.

10. Ibid., p 405.

11. "10. Tagung ...," op. cit., p 31.

12. The impact of software extends beyond the reproduction process--to recreational activities, for example. Chess computers, home computers, sophisticated electronic devices for pop music groups, and other similar equipment cannot function without software. The subject of software as a consumer commodity is outside the scope of this study.

13. G. Rossa, "Technology of Software Production for Microcomputers," RECHENTECHNIKDATENVERARBEITUNG, No 7, 1985, p 5.

14. K. Marx and F. Engels, "Werke," op. cit., p 196.

15. It is only in the field of biology, in the cultivation of new varieties, that one finds a comparable situation.

16. K. Marx and F. Engels, "Werke," op. cit., p 50.

17. Ibid., p 53.

18. Ibid., Vol 25, p 150.

19. See H. Richter and W. Schliesser, "Die Warenproduktion im Sozialismus," [Commodity Production Under Socialism], Berlin, 1977, pp 65 ff.

20. Ibid., p 67.

21. K. Marx and F. Engels, "Werke," op. cit., Vol 25, p 194.

22. Ibid., p 202.

23. Ibid., p 187.

24. The extent to which service in particular affects the software producer's capacity is illustrated by the fact that a machine tool combine must allocate 50 percent of its software production capacity for service, and as the software sales volume grows, this percentage will be increasing further. It is imperative that the software producer

establish a special warranty claims fund which should be replenished out of profits. The extent to which this fund is used is an indication of the quality of software production.

25. "10. Tagung ...," op. cit., pp 34 ff.

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ECONOMY

POLAND

NEW PENSION LAW PROVISIONS

Warsaw TRYBUNA LUDU in Polish 31 Jan 86 p 4

[Propositions from a speech by Sejm Deputy Z. Draminski]

[Text] The law of 14 December 1982 on pension provisions for workers and their families was meant to prevent the rebirth of the so-called old wallet of pensions;

The passage of the law, however, did not meet these expectations and the reason was the unrestrained growth of wages, especially in the years 1983 and 1984;

In this regard additional actions meant to maintain the real value of pensions were undertaken. Despite this, one cannot see the living conditions of pensioners as satisfactory and the problem of the "old wallet" has intensified;

The general assumption of the increase currently proposed by the government is executing it on lines similar to the revaluation of pensions carried out in 1983-84;

The government has proposed distributing the increase over the next few years so that, for example, the basis of the level of contributions allocated to the end of 1981 would increase annually by 12.5 percent, and allocated in 1982 by 7 percent annually. It was proposed that pensions allocated to the end of 1981 be increased in four annual installments and in five installment for those allocated in 1982;

The government proposal assumes a temporary modification this year in the mechanics for the current valuation of pensions so that--within the limits of funds set aside in the National Annual Plan for valuation--an additional increase in pension allocated to the end of 1982 would be possible. Valuation in 1986 would be carried out not in proportion to the actual increase in wages in the state economy, i.e., by 18 percent, but on the basis of a rate of 15 percent;

In addition, limitation of the valuation level of the increase in the basis of the level of contributions to 3000 zloties in proposed;

The government proposals elicited many comments and suggestions directed to the Sejm by citizens and social organizations;

The committees share the opinion that carrying out valuation on unchanged bases with an additional, one-time increase compensating for the increase in wages since 1982 would be most advantageous. However, the cost of such an undertaking would be 210 billion zloties and incurring it under the country's present economic circumstances is practically impossible;

The government, however, is obligated to save additional funds on increasing pensions this year. The committees have proposed decreasing the number of increase installments and raising this amount for people over 75 and for Group I invalids;

The bases of the level of their contributions (if they have been allocated to the end of 1982) would increase by 20 percent but not more than 4000 zloties for 1 September and execution of the entire increase would be shortened to three years. In the case of contributions allocated in 1983 the increase for people in this group would be 6 percent of the basis of their level (no more than 1500 zloties) and this would be a one-time increase;

The bases of the level of contributions for remaining pensioners would increase from 1 September by 14 percent but no more than 3000 zloties (contributions allocated to the end of 1981) and by 10 percent, but not more than 2000 zloties (contributions allocated in 1982). In these cases the entire increase would be carried out in four annual installments;

The total cost of executing this law setting the basis for valuation of pension in March 1986 and the additional increase in contributions from 1 September would be 96.1 billion zloties, 6.1 billion zloties more than anticipated by the government proposal;

The committees believe that effective resolution of the problem of pension provisions for workers and their families requires complex regulation of the relationship between wages and productivity in the national economy;

The adoption of a modernized law on pension provisions this year will be imperative. The committees propose adoption of the present government proposal as a temporary solution.

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CSO: 2600/268

ECONOMY

POLAND

FOREIGN DEBT SERVICING FUND DECREASES INVESTMENT CAPITAL

Warsaw ZYCIE GOSPODARCZE in Polish No 5, 2 Feb 86 p 6

[Article by Joanna Kotowicz: "How much for FOZZ?"]

[Excerpts] With the favorable changes in credit policy, which promise a shift of emphasis in investment policy to investment by enterprises, the bases for creation of the Foreign Debt Servicing Fund [FOZZ] require serious reflection. According to them, units of the state economy are bound to pay to FOZZ amounts from their development funds, 2 percent of the value of their net fixed assets. Percentages do not reveal much; let us try therefor to show the scale of the burden newly imposed on enterprises in branch-departmental light, taking as a basis the value of fixed assets, profits and the amount of funds accumulated for development fund accounts for 1984, for which data are available in reports from the Central Office of Statistics.

Table 1

Estimate of payment to FOZZ in industry (billions of zloties, 1984 rates)

Table Industry total	115.5
Fuel-energy	35.5
Coal	12.9
Energy	15.8
Metallurgy	13.9
Electromachinery	24.4
Chemical	11.0
Mineral	6.4
Wood-paper	4.6
Light manufacturing	5.8
Food	9.8

From the data on fixed assets in 1984, it is evident that the level of these payments would be about 115 billion zloties in industry in general. In Table 1 the numbers showing the size of these payments in the most important departments and branches is given.

Table 2 contains the proportional share of those payments in the value of development fund monies in certain branches for data taken as an example from

1984. As is apparent from these ratios, payments on FOZZ's behalf would decrease the total value of the development funds of individual enterprises by 24.3 percent. In six branches, the fund would decrease by 30 percent and in iron production and the paper industry by more than 40 percent.

Share of payments to FOZZ in development fund monies (percent)

Table 2

Industry total	24.3
Fuel-energy	26.1
Coal	19.5
Metallurgy	34.7
Ironworks	45.3
Electromachinery	18.5
Chemical	28.2
Mineral	29.3
Building materials	30.2
Wood-paper	32.8
Wood	29.0
Paper	40.4
Light manufacturing	19.1
Food	24.0

Share of payments to FOZZ in profits for distribution (percent)

Table 3

Industry total	25.2
Fuel-energy	46.6
Coal	32.8
Fuel	30.1
Metallurgy	34.2
Ironworks	40.5
Electromachinery	12.6
Chemical	23.6
Mineral	32.6
Building materials	37.4
Glass	17.0
Wood-paper	27.8
Paper	42.2
Light manufacturing	11.0
Food	17.4

The level of obligations by way of payments to FOZZ is also reflected in the estimates given in table 3 of the trend of the ratio of payments to the amount of profit for distribution in various branches of industry. From the more detailed accounts it is apparent that only in half of the main branches and departments of industry, encumbering profit for distribution with payments to the fund will not achieve the 20 percent ceiling. Generally then, we can talk about a significant limitation of investment possibility for industry. The enterprises' anxiety in this situation seems fully justified in light of the

generally familiar phenomenon of using up fixed assets, including their active part, e.g., machines and tools.

It seems therefore that it would be necessary to go back to the issue once more. One should consider, in my opinion, the possibility of making more flexible the solution introduced by the law, appropriate to the realistic possibilities for contributions on FOZZ's behalf, so as not to overstep the elementary principles of protecting productive property. It is also necessary to consider adapting the level of payments to FOZZ to the level of development funds and the actual condition of the productive apparatus of particular enterprises.

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CSO: 2600/268

ECONOMY

POLAND

PRODUCER GOODS PROCUREMENT OUTLOOK FOR 1986-1990

Warsaw GOSPODARKA MATERIALOWA in Polish No 2, Jan 86 pp 33-39

[Article by Jerzy Owczarek, professor of engineering, Warsaw Institute of Technology: "Outlook for Procurement of Producer Goods in 1986 in Selected Groups of Items"; first two paragraphs are GOSPODARKA MATERIALOWA introduction]

[Text] This article is the first part of a report discussing producer goods procurement in 1986 in the context of the procurement outlook to 1990. The second part will appear in our next issue.

By acquainting our readers with an assessment of the producer goods situation, we want to make it easier for enterprises and other economic organizations to conduct a producer goods policy (strategy) in line with existing conditions. We believe that this article must be regarded as additional proof that better satisfaction of needs for these goods, and achievement of market balance in them, is dependent directly on effective application of measures which will bring about a real improvement in the efficiency of the utilization of these goods.

*

The anticipated structure of the procurement of producer goods in 1986 is presented on the basis of plans and expectations in this area during 1986-1990. In assessing the status of producer goods procurement in our country, we must remember that "During the years that remain in the 20th century, the entire world will have to use several times more materials than it has used since the birth of civilization. Reserves of metal ores and fossil fuels are sufficient to cover world requirements in the last decades of our century, and probably into the early part of the next century. As we reach the end of the century, the cost of extracting raw materials will probably be higher and higher." (Quoted from W. Leontief's report to the UN, "Tomorrow's World Economy.")

Progress in the world's economy brings about inevitable consequences to our economy. The growth in world requirements for raw materials, fuels and other materials, also has a definite effect on the domestic processing industry. In addition, rising extraction costs make access to many fuels and raw and other materials difficult.

In light of this, the procurement of producer goods in 1986 and the forecast for 1986-1990 will depend in large measure on what happens on the world market. At this time it is difficult to foresee what the fluctuations will be, how many materials will undergo large price increases, and in how many there will be an overproduction. Because of this, the assessment given in the article assumes normal conditions and does not allow for possible disruptions in deliveries of fuels and raw and other materials, particularly imported ones, to the national economy.

Deliveries in 1985

Based on figures from 9 months of last year, reports and analyses from organizations preparing balance sheets, and considering the state's ability to pay and the events and trends of previous years, it can be said that implementation of central producer goods balances occurred under decidedly more difficult conditions than those envisaged when the National Annual Plan (NAP) for 1985 was prepared.

This assessment is based on the following particulars:

--difficulties and reductions in deliveries from imports which are centrally financed; this pertained especially to the second payments area [capitalist countries], and was caused by a lower allocation of foreign exchange funds (approximately 80 percent of that which had been provided in the 1985 NAP),

--a decline in industrial production in January and February of last year due to bad weather; this caused a large increase in fuel consumption relative to the time elapsed and also relative to production results,

--failure by producers to deliver full amounts of raw and other materials covered by government orders; for example, in chemical and light industry: woven and knitted fabrics for engineering purposes, nitrogen fertilizers, and adhesives for construction; in metallurgy and machines industry: steel wire, rechargeable car batteries, central heating boilers, ship cables, and barrel bearings; and in the building materials industry: mineral wool.

Because of this, a number of strains appeared in the implementation of the program for procurement of producer goods in the national economy. The primary ones include difficulties in making deliveries and satisfying needs involving petroleum-derived products, especially liquid fuels and asphalts from petroleum processing, and shortages, as compared with needs, of raw materials and products made from plastics, particularly polyvinyl chloride, linings from plastics, and tubing from polyvinyl chloride. The shortage of metallurgical products was also acute, particularly such items as steel drill pipes, large-diameter main pipes, hot-rolled thin sheet, especially in 2 to 6 mm thicknesses, smaller diameter wire rods, galvanized sheet, and quality-steel products. Shortages appeared also in sanitary-installation and finishing trim items for housing construction, and especially in central heating cast iron radiators.

An attempt was made to alleviate the shortages, caused by reductions of deliveries from domestic production, by making changes in export and postponing deliveries for foreign contractors, especially of hard coal and coke, and also by distributing the reserves held by the Council of Ministers and the minister of materials management (now the minister of materials and fuels management) for the most critical needs, so as to guarantee that socially justified economic goals will be implemented. Also, during 1985 the import postponed from 1984 was resumed, including cast iron radiators, metallurgical products, electric power cables and heating oil. In addition an attempt was made to reduce suppliers' stocks and macroeconomic standards for buyers' stocks were instituted.

According to estimated calculations made in October 1985, and an assessment of the possibility of making up the arrears, production in 66 materials balances, out of a total of 198, projected in the 1985 NAP, was threatened.

In the assortment approved by the Council of Ministers (65 balances), 27 balances were threatened, with the greatest disproportions occurring in deliveries of polyvinyl chloride (55 percent fulfillment of the NAP), caustic soda (81.3 percent), nitrogen fertilizers (88 percent), and cement (91 percent). In the other balances the degree of endangerment ranged from 5 percent (synthetic rubber and sulfur) to not quite 2 percent (paper, aluminum, heating oil).

In the materials whose balances are approved by the minister of materials management (133 balances), fulfillment of the 1985 NAP was endangered in 39 balances (29 percent of the total amount), and the following materials were in the greatest peril: lines for conveyors (about 43 percent NAP fulfillment), PVC pipes (70 percent), bare aluminum-steel overhead wire (74 percent), and glycerine (75 percent). In addition, fulfillment of such assortments as ferrochromium, polvinites for electrical wire, adhesives for footwear, mineral wool and hard finished leather, was below 90 percent.

Comprehensive Assessment of Materials Balances for 1986

In 1986 there should be improvement in 109 balances (out of a total of 198), in which the production anticipated by the turnover organization will be higher than in 1985. Of this number, 33 balances are approved by the Council of Ministers and 76 by the minister of materials management.

On the other hand, in 19 balances (10 Council of Ministers and 9 minister of materials management), production planned for 1986 will be lower than anticipated fulfillment in 1985. This applies especially to:

--out of Council of Ministers balances: high-methane natural gas (production in 1986 approximately 85 percent of 1985 fulfillment); gasoline engine fuels (97.7 percent), steel pipes (95.4 percent), polyethylene (97.1 percent), polypropylene (97 percent), tractor tires (90 percent).

--out of minister of materials management balances: lime fertilizers (98 percent), drawn plate glass (94 percent--the market is fully saturated now),

signalling cable (approximately 80 percent), crude tar (98 cent), hard finished leather (95 percent).

Furthermore, it should be noted that the production growth rate for basic raw and other materials and products covered by central balancing in 1986 will not reach the indicators envisaged in the draft NAP, i.e., 3.2 to 3.7 percent. In 97 balances, these indicators will be below the assumptions of the NAP.

Thus an attempt can be made to assess the status of procurement according to verified buyers' needs. While continuing to correct previous decisions on procurement, the structure of expenditures of fuels, raw materials, other materials, and products, assumed in the balance plans, must take the following into account:

--deliveries for purposes covered by guarantees of procurement must be ensured,

--basic social needs, particularly food, housing, and consumers goods and services, must be satisfied,

--effective choices must be made to restructure the national economy by forcing changes to be made in the consumption of fuel and raw and other materials,

--the state's pro-export policy, especially in relation to the second payments area, to ensure foreign-exchange to finance import, must be considered,

--there must be an indispensable amount of balance reserves.

The turnover organizations' analysis and assessment of the scale of the requirements submitted, shows that there will most likely be a shortage of raw and other materials in 1986 in 98 balances. The extent of this shortage will differ, as shown in Table 1 for selected assortments. Therefore, in 16 balances the shortage will not exceed 5 percent of the requirements. The more important balances, those with the greatest application, include: heating oil (3.5 percent), copper (1.8 percent), zinc (1 percent), tin (4 percent), aluminum (4 percent), chemical fibers (3 percent), sawmill softwood (3 percent), and copper products (over 4 percent). Also in 16 balances the shortage will be between 5 and 20 percent of requirements and will occur in the following important assortments: auto batteries (19.8 percent), synthetic rubber latex (19.7 percent), polyethylene (18.7 percent), nitrogen fertilizers (18.1 percent), bare steel-aluminum wire (13.2 percent), electric power cable (10 percent), crude tar (9.7 percent), phosphor fertilizers (9.1 percent), aluminum products (8.6 percent), tin bathtubs (7.8 percent), polyvinyl chloride (7 percent), and gas kitchen ranges (5.6 percent).

In 29 balances the extent of the shortages is much greater than 20 percent. The most acute shortages in 1986 will be in the following assortments: steel pipe (57 percent), zinc-coated sheet (48.6 percent), truck tires (58.3 percent), tubes (46.7 percent), polystyrene (43.3 percent), asbestos-cement panels (38.9 percent), tinplate (37.5 percent), cast iron radiators (37.2 percent), polypropylene (36 percent), tar paper (32.8 percent), cast iron

Table 1. List of Critical Fuels, Raw Materials and Other Materials, Which Will Be in Short Supply in 1986*

Product Group	Unit of Measure	Requirements	Planned Distribution	Shortage (in percent)
<u>Council of Ministers' Balances</u>				
Hard coal and briquettes	Thous tons	205,508	194,300	5.5
Coke and semicoke	Thous tons	22,000	16,540	24.8
Heating oil	Thous tons	2,789	2,692	3.5
Hot-rolled products	Thous tons	16,098	12,560	22.0
Steel pipe	Thous km	604	260	57.0
Cold-rolled sheet	Thous tons	2,267	1,730	23.7
Zinc-coated sheet	Thous tons	687	353	48.6
Tinplate	Thous tons	160	100	37.5
Drawn, ground, polished bars	Thous tons	316	215	32.0
Electric power cables	Km	38,000	34,200	10.0
Acid batteries for autos	Thousand	2,800	2,250	19.6
Nitrogen fertilizers	Thous tons N ₂	1,783	1,461	18.1
Phosphor fertilizers	Thous tons P ₂ O ₅	1,030	0.36	9.1
Polyethylene	Ton	193,000	157,000	18.7
Polypropylene	Ton	100,000	64,000	36.0
Polyvinyl chloride	Ton	320,000	281,000	7.0
Polystyrene	Ton	60,000	34,000	43.3
Synthetic rubber	Ton	186,100	158,900	5.5
Automobile tires	Thousand	5,340	4,078	23.6
Truck tires	Thousand	4,833	2,500	48.3
Tractor tires	Thousand	1,460	1,020	30.2
Farm machinery and eqpmt tires	Thousand	1,455	848	31.7
Coniferous timber	Thous sq m	6,768	5,350	20.9
Paper	Thous tons	1,451	1,215	16.2
Particle board	Thous sq m	1,604	1,330	17.1
Cardboard	Thous tons	324	225	30.6
<u>Office of Materials Management's Balances</u>				
Signalling cable I	Km	28,500	22,000	22.8
Signalling cable II	Km wire	375,000	260,000	30.7
Electric power cable for placement on steel I	Km	283,400	223,000	21.3
Electric power cable for placement on steel II	Km	160,000	120,000	25.0
Copper beam conduit	Ton	36,500	28,160	22.8
Bare steel-aluminum conduit	Ton	330,100	26,100	13.3
Bare copper trolley conduit	Ton	4,800	4,000	16.7
Polyvinyl chloride pipe	Km	40,000	32,250	19.4
Styrofoam panels	Thous sq m	695	550	20.9

[Continued on following page]

[Table 1 continued]

<u>Product Group</u>	<u>Unit of Measure</u>	<u>Requirements</u>	<u>Planned Distribution</u>	<u>Shortage (in percent)</u>
Incandescent lamps, main series	Million	210	187	10.9
Fluorescent lamps, main series	Thousand	30,000	19,760	34.1
High-pressure hoses	Km	9,650	6,300	34.7
Tin-lead filler metal	Ton	4,030	3,070	23.8
Ordinary drawn wire	Ton	410,000	201,000	51.0
Crude tar	Ton	800,000	721,700	9.7
Asphalt	Ton	1,621,000	1,257,100	22.4
Cast-iron bathtubs	Thousand	300	210	30.0
Sinks (drainboard)	Thousand	770	615	20.1
Central-heating cast-iron radiators	Thous sq m	6,800	4,130	39.2
Metal welding electrodes	Ton	88,700	65,500	26.1
Kitchen gas ranges	Thousand	800	830	5.6
Plastic conveyor belts	Km	1,120	870	22.3
Rubber conveyor belts	Km	5,030	3,928	34.4
Inner tubes	Thousand	13,020	6,930	46.7
Wall materials (in general)	Million y.c.	9,150	7,357	17.6
Lime	Thous tons	5,500	4,360	20.7
Asbestos-cement board	Thous sq m	77,000	47,000	38.9
Stone floor slabs and shapes	Thous sq m	6,200	2,650	57.2
Door and window woodwork	Thous sq m	11,700	10,220	13.1
Small wall elements	Million y.c.	8,200	8,648	16.5
Wood flooring materials	Thous sq m	8,300	4,080	50.8
Plastic facings (construction)	Thous sq m	32,000	26,380	17.5
Tarpaper	Thous sq m	280,000	198,000	32.8
Mineral wool	Thous sq m	79,000	44,700	34.5
Cotton and cottonlike finished fabrics and knits	Thous m	1,060,000	866,000	18.3
Finished hard leather	Ton	6,600	5,810	11.9
Finished light leather	Thous sq m	34,000	30,940	9.0
Epoxy resins	Ton	9,420	7,099	24.6
Adhesives in general	Ton	19,000	14,500	23.7

*

The requirements given in the table were prepared on the basis of balances supplied by turnover organizations, who assessed and verified the needs reported to them by purchasers. Shortages no greater than 5 percent were omitted. Omitted also were materials not commonly used in the national economy (12 from the Council of Ministers' group of balances and 35 from the group of balances controlled by the office of materials management).

bathtubs (30 percent), coke and semicoke (below 25 percent), cold-rolled sheet (23.7 percent), metal welding electrodes (26.1 percent), asphalt (22.4 percent), rolled products (22 percent).

Forecast for Producer Goods Procurement During 1986-1990

To more fully illustrate the extent of the problems relating to procurement of producer goods during 1986-1990, the following detailed information is presented on selected, most commonly used assortments. Tables 2 to 7 contain balances of basic metallurgical products.

The growth in requirements, especially for production purposes (almost 19 percent for the 5-year period), indicates that much more stringent technological standards must be applied and new design solutions must be sought in the production of final products in which steel is used. The scarcely 7.3 percent increase in total receipts, anticipated for this period in the 1985 NAP, does not ensure that the most urgent needs will be met. The shortages which will occur in the individual years of the 5-year plan, ranging from 3,300 thousand tons in 1986 to 4,600 thousand tons in 1990, will cause additional disruptions and strains in the process of supplying metallurgy with materials for production--disruptions and strains caused by the excessive foresightedness of the buyers themselves. Considering the probable overestimation of requirements, applicable to all metallurgical products, as well as the method used by CENTROSTAL Central Union of Cooperatives to collect requirements, we believe that the actual shortage will be somewhat different than the numbers presented would indicate.

Below we present the predicted status of individual groups of materials.

Possibilities and Means of Increasing Deliveries of Metallurgical Products

Rolled products. The growth of production is dependent on expansion and modernization of production lines in many steelworks. The following measures must be taken to alleviate the most serious shortages:

--If production of ribbed wire rods for construction is to be increased, the Kosciuszko Steelworks wire mill must be modernized. Until this modernization takes place there will be considerable shortages, especially in wire rods of less than 10 mm sections;

--If production of flat bars, thin and medium, is to be increased, more workers must be employed and 4-gang work in the rolling mills of the Baildon, Batory, Stalowa Wola, and Zawiercie Steelworks must be restored;

--If production capacity of thick bars is to be increased, equipment must be added to the Warszawa and Stalowa Wola Steelworks rolling mills;

--If production of hot rolled sheet, 2-6 mm thick, grade 1-3, in which a particularly severe shortage occurred in 1985--and it is expected that it will continue--is to be increased, rolling mill and finishing equipment must be modernized;

--If production of hot rolled sheet, 5-6 mm thick, grades 4-6, is to be increased, the sheet mill in the Stalowa Wola Steelworks must be completely modernized.

Similar preconditions for production growth through modernization and additional employment apply to the other sheetmetals. Surpluses will occur in the production of contoured products and shortages will occur mainly in cold rolled sheet, which means that production in the automotive industry and in household items, e.g., washing machines, refrigerators, etc., will drop.

Steel Pipe

The main strains in ensuring deliveries in this assortment group will continue to be concentrated on the traditionally scarce types of pipe, namely:

--seamed line pipes (main), over 1,000 mm diameter. If production is to be increased, new units will have to be installed. In the immediate 5-year plan, strains in this assortment will not lessen due to the number of investments covered by government orders, especially water intakes and water treatment plants;

--drill pipes. To increase their production, finishing equipment will have to be added to the Bierut, Batory and Jednosc Steelworks. The most urgent needs are for screw-cutters, cut-off saws and hydraulic presses. Use of high-strength stock will also improve the situation. The shortage of drill pipes will greatly delay implementation of the "water to the countryside" program;

--boiler pipes and high-alloy pipes. Their production can be increased only if the steelworks can be equipped with new processing lines.

The pipe shortage, relatively the highest in the metallurgical products group, will grow from 332,000 km in 1986 to 411,000 km in 1999, which will cause a serious strain in procurement, particularly in the power industry, in chemistry, mining and the municipal economy.

Metallurgical Processing

According to CENTROSTAL assessments, domestic production should be sufficient to meet buyers' needs for such products as zinc-coated and plated sheet, railroad turnouts, and mine arches. There will be insufficient quantities of cold-rolled strip and drawn bars. This shortage will mean a reduction of production primarily in the electrical machine industry, which will be most evident in the precision, bearing and tool industries.

In view of the large shortage of metallurgical products and the many cases of uneconomical management of these items, savings must occur during the production process. It is envisaged that savings in rolled products and drawn bars should amount to 3 percent, and in other products, 2 percent, of requirements for production purposes. This means that approximately 300,000 tons in each group must be saved annually.

[Key to Tables 2 thru 12 follows tables]

Table 2. Simplified Balance of Hot-Rolled Products (in thousands of tons)

(1) 1980 wykonanie	(2) 1985 CPR	(3) 1990 projekt	% 1985 1990 1980 1985	
			1985 1980	1990 1985
(4) 16 495	15 794	18 273	95,7	115,7
(5) 13 593	12 919	15 363	94,3	118,9
(6) 13 291	12 726	13 660	95,7	107,3
(7) 11 097	10 547	11 325	95,0	107,4
(8) 93,5	82,9	82,9		

Table 3. Steel Pipe (in thousands of tons)

(1) 1980 wykonanie	(2) 1985 CPR	(3) 1990 projekt	% 1985 1990 1980 1985	
			1985 1980	1990 1985
(4) 724,0	617,0	705	85,2	114,3
(5) 528,0	450,0	529	85,3	117,6
(6) 332,5	274,5	294	82,6	107,1
(7) 320,7	259,0	268	80,8	103,5
(8) 96,5	94,4	91,2		

Table 4. Cold-Rolled Steel Sheet (in thousands of tons)

(1) 1980 wykonanie	(2) 1985 CPR	(3) 1990 projekt	% 1985 1990 1980 1985	
			1985 1980	1990 1985
(4) 2317	2217	2619	95,7	118,1
(5) 2271	2188	2585	96,3	118,1
(6) 1900	1679	1840	88,3	109,6
(7) 1828	1625	1763	88,9	108,5
(8) 96,2	96,8	95,8		

Table 5. Zinc-Coated Sheet (in thousands of tons)

(1) 1980 wykonanie	(2) 1985 CPR	(3) 1990 projekt	% 1985 1990 1980 1985	
			1985 1980	1990 1985
(4) 807,0	719,0	819	89,1	113,9
(5) 685,0	584,0	694	85,3	118,8
(6) 366,1	348,0	363	95,1	104,3
(7) 328,7	278,5	298	84,7	107,0
(8) 89,8	80,0	82,1		

Table 6. Tinplate (in thousands of tons)

(1) 1980 wykonanie	(2) 1985 CPR	(3) 1990 projekt	% 1985 1990 1980 1985	
			1985 1980	1990 1985
(4) 213,0	163	173	76,5	106,1
(5) 213,0	163	173	76,5	106,1
(6) 151,0	94	120	82,3	127,6
(7) 147,2	91	101	61,8	111,0
(8) 97,5	96,8	84,2		

Table 7. Drawn, Ground and Turned Bars (in thousands of tons)

(1) 1980 wykonanie	(2) 1985 CPR	(3) 1990 projekt	% 1985 1990 1980 1985	
			1985 1980	1990 1985
(4) 386,0	305	381	79,0	124,9
(5) 386,0	305	381	79,0	124,9
(6) 248,1	214	242	86,3	113,1
(7) 246,5	205	226	83,2	110,2
(8) 99,4	95,8	93,4		

Table 8. Copper
(in thousands of tons)

(1) 1980 wykonanie	(2) 1985 CPR	(3) 1990 projekt	%	
			1985 1980	1990 1985
(4) 430 000	450 600	506 800	104,8	112,5
(5) 197 500	193 000	246 800	97,7	127,9
(6) 417 759	433 600	468 500	103,8	108,0
(7) 191 791	180 100	205 500	93,9	114,1
(8)	45,9	41,5	43,9	

Table 11. Tin
(in tons)

(1) 1980 wykonanie	(2) 1985 CPR	(3) 1990 projekt	%	
			1985 1980	1990 1985
(4) 5 630	5 100	5 390	90,6	105,7
(5) 5 590	5 060	5 340	90,5	105,5
(6) 5 522	4 452	5 285	80,6	118,7
(7) 5 216	4 400	5 175	84,3	117,6
(8)	94,5	98,8	97,9	

Table 9. Zinc
(in tons)

(1) 1980 wykonanie	(2) 1985 CPR	(3) 1990 projekt	%	
			1985 1980	1990 1985
(4) 264 500	213 700	223 200	80,8	104,4
(5) 184 700	174 600	197 200	94,5	112,9
(6) 236 393	192 500	201 000	81,4	104,4
(7) 165 061	155 500	171 000	94,2	110,0
(8)	69,8	80,8	85,1	

Table 12. Aluminum
(in tons)

(1) 1980 wykonanie	(2) 1985 CPR	(3) 1990 projekt	%	
			1985 1980	1990 1985
(4) 292 000	239 000	262 900	81,8	110,0
(5) 286 000	225 000	258 900	78,7	115,0
(6) 262 051	202 000	238 000	77,0	117,8
(7) 232 453	193 500	231 000	83,2	119,4
(8)	88,7	95,8	97,1	

Table 10. Lead
(in tons)

(1) 1980 wykonanie	(2) 1985 CPR	(3) 1990 projekt	%	
			1985 1980	1990 1985
(4) 107 400	106 800	122 400	99,4	114,6
(5) 107 400	106 800	122 400	99,4	114,6
(6) 92 336	94 000	108 000	101,8	114,9
(7) 91 319	92 500	105 000	101,3	113,5
(8)	98,9	98,4	97,2	

Key to Tables 2 thru 12:

1. 1980 production
2. 1985 National Annual Plan
3. 1990 Plan
4. Total requirements
5. Requirements for production purposes
6. Total receipts
7. Expenditures for domestic procurement
8. Share of expenditures for domestic procurement in total receipts

Outlook for Metallurgical Products in 1986

Production of rolled products should be slightly higher than in 1985 (100.7 percent); on the other hand, a growth of import is envisaged (103.4 percent), particularly from the first payments area [socialist countries] (117.4 percent).

The production drop--as compared to preliminary figures set forth in the National Socioeconomic Plan (NSP) draft--will amount to over 260,000 tons. This will be caused by the following:

- elimination of a large rolling mill and cogging mill in the Pokoj Steelworks (a production loss of 94,000 tons),

- a decrease in finished production in preliminary rolling mills in connection with a lowering of production of rolled steel for pipes (a 40,000-ton drop in production due to repair of the pipe mill in the K. Swierczewski Steelworks),

- a 130,000-ton drop in production due to modernization of the hot-rolling sheet mill in the Lenin Steelworks.

Steel pipe production in 1986 will also be lower (by 12,000 km) than had earlier been envisaged in the NSP. A drop in production will occur in the following steelworks: Batory (240 km), Lenin (600 km), Swierczewski (2,100 km), Buczek (3,800 km), Jednosc (5,250 km), due to repairs to the pipe mill and lower deliveries of stock pipe for further processing.

The 1986 production plan for zinc-coated sheet and cold-rolled sheet is the same as in 1985. This means that as tasks in the processing industries which use this sheet increase, materials for additional production will have to be come from savings.

There will be slightly more zinc-coated sheet in 1986 than in 1985 (103.3 percent), but still over 5 percent less than had been planned in the preliminary NSP draft.

The production of drawn bars in 1986 is planned at 4,000 tons below the preliminary NSP draft. The decrease in the plan is due to the lack of demand for the higher than 20-mm diam assortment offered by the steelworks. On the other hand, there will be a much greater shortage in the assortment with a diameter less than 14 mm, which the steelworks are no longer able to produce. Because of this, many enterprises will be forced to do a lot of machining--beyond the processing parameters--which will make implementation of the savings program difficult.

Outlook for Nonferrous Metallurgical Products

The balances of the important products from the nonferrous metals industry are shown in Tables 8 through 12.

In most balances the receipts in 1990 (with the exception of copper and lead) will be lower than achieved in 1980. The greatest drop will occur in receipts of zinc, which will amount to scarcely 85.2 percent of the 1980 amount. The most favorable tendencies appear in copper. Successive 5-year periods show a regular growth of receipts (by 4 and 8 percent). On the other hand, the minimal growth (as shown in the NSP) is not being achieved in the other balances--the growth on which execution of production tasks is based.

Any growth in deliveries of nonferrous metals requires, according to the Nonferrous Metals Sales Center, is dependent on immediate implementation of the program for the expansion of the nonferrous metals industry. Insofar as copper is concerned, the mining potential must be expanded and the mill equipment must be modernized in ZGH Lubin, ZG Ruda and ZG Sieroszowice. To eliminate the costly import of zinc and lead and to ensure domestic production, the Trzebionka mine, together with the enrichment plant, must be expanded to a potential of 2 million tons per year. Also, expansion of the Olkusz-Pomorzany mine by 500,000 tons per year and deliveries of imported machines, equipment and spare parts, will guarantee that the needs of the national economy for zinc and lead will be met, using domestic raw materials.

The primary factor in alleviating the shortage of tin may be the winning of all of the tin-bearing scrap obtained from the production of bearing alloys in "Hutmen" and the recovery, by "Wtormet" of tin from scrapped tin-coated products. In undertaking all kinds of economy measures in the consumption and recovery of this raw material, its unit price--1.5 million zlotys per ton, should be regarded as an important factor. Also, the fact that over 80 percent is imported from the second payments area means that consumption must be more efficient and that tin should be saved by using all available means.

Expansion and modernization of the Konin Aluminum Works will not make a significant improvement in the balance of this metal. It will still be necessary to import it. In the respective years of the 5-year plan, additional deliveries from import will range from 116,000 tons in 1986 to 134,000 tons in 1990.

Outlook for Procurement of Nonferrous Metals in 1986

The size of copper production in 1986 is set at 386,700 tons, i.e., hardly 0.4 percent over that produced in 1985. Despite the slight increase in production, there should be a noticeable improvement in procurement for domestic buyers. This will be the result of a large reduction in export, 8 percent less than in 1985. Therefore, it will be possible to allocate additional amounts of copper (4.2 percent more than in 1985) for products and for cable and wire (almost 10 percent more).

Zinc production in 1986 is set at 1985 figures, and recovery from scrap will be about the same. But because imports will be reduced, 1986 stocks will be 1,000 tons less than those on hand in 1985.

Planned deliveries of zinc for domestic procurement will meet the needs of the national economy in 1986. Only production of zinc white will be affected by a shortage, amounting to approximately 1,300 tons.

The tasks in the plan for 1986 will be fulfilled only if the required deliveries of energy for zinc production are ensured.

Lead production in 1986 will continue at the 1985 level, which is also as much as the mills are able to produce. This means that deliveries can be increased only through imports from the second payments area. The anticipated growth of almost 43 percent may be very difficult to achieve in view of the state's balance of payments. Therefore, disruptions may occur in deliveries for production purposes, and especially for the battery industry. Consumption in this industry is expected to be 50 percent of expenditures for production purposes.

It is planned that tin deliveries in 1986 will be about 5 percent better than in 1985. Receipts from domestic sources will be maintained at the 1985 level, however import should be almost 10 percent higher. But deliveries as planned will not satisfy needs. Despite the over 4 percent growth of deliveries for production purposes, there will still be a shortage of tin for production of filler metal, bronzes and tin anodes.

Thanks to the repairs made in Konin Steelworks in 1985, aluminum production in 1986 will be approximately 500 tons greater than in 1985. But this increase, together with 1,000 tons of aluminum obtained from scrap, will not meet the increased needs of buyers. The planned shortage will amount to 4.2 percent of expenditures for production purposes.

There will be larger deliveries of aluminum in 1986 for production of wire rods for the cable industry and for production of aluminum casting alloys for the agri-food industry (silos, cold stores, driers, dairy cans and conveyors), and for household, automotive and tractor needs.

But domestic needs will not be met, especially for packaging, consumer goods, sports equipment, etc.

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CS0: 2600/360

ECONOMY

POLAND

STRICTER CREDIT TERMS FOR POLONIA FIRMS CRITICIZED

Warsaw BANK I KREDYT in Polish No 8, Aug 85 (signed to press 4 Dec 85) pp 269-273

[Excerpts] Enterprises owned wholly or in part by foreign entities pay carry on economic activity not only on the basis of their own financial resources but also based in part on funds temporarily at their disposal from the bank. Foreign concerns can obtain revolving credit at the PKO SA to finance their current needs associated with economic activity consisting in particular of the production of goods and contribution of services for the needs of the internal market, the export of their own products and services and the import of commodities necessary for those products and services, as well as investment credit earmarked for financing investment expenditures associated with the economic activity being conducted.¹

The basis for granting credit for the period indicated within the valid term of the license is the contract between the bank and borrower defining the conditions and terms of repayment and interest, depending on the borrower's ability to repay the credit incurred (evaluated on the basis of the borrower's present and future efficiency of management and financial status).² The bank and foreign enterprise therefore enter into contractual relations in which both sides have rights and obligations. The bank commits itself to temporarily making available to the enterprise a specific sum of money, while the enterprise commits itself to fulfilling the conditions for obtaining the credit and providing the bank with all information for an appraisal of its creditworthiness.

The bank makes an appraisal of the borrower's economic activity and financial situation and oversees the conformity of the use of the credit with the purposes for which it was granted (through observation of the borrower's bank account balances, the amount and frequency of payments on these accounts as well as on the basis of inspection). Also subject to verification are other conditions which the borrower committed itself to observe in the contract. The bank immediately terminates credit to enterprises that are not currently creditworthy, i.e., unprofitable or inefficient. Enterprises that depart from fulfillment of the purpose defined in the contract or that have changed the allocation of the credit can anticipate that the bank will terminate all or part of the credit granted before the due date.

A condition sine qua non of granting credit is the bank's obtaining from the foreign concern the surety provided for by civil or trade law. The point in particular is surety, transfer, deposit, mortgage and note.

In granting credit to foreign concerns the bank gives preference to particular areas of their economic activity. In particular the purpose of granting credit can be financing the elements of income property, e.g., material reserves and amounts associated with the economic activity conducted and coverage of required obligations in the event of temporary difficulties with payment. To determine the amount of revolving credit made available to the borrower, the bank evaluates its credit needs. On that basis a differentiation in the credit level during the period for which it was granted is possible, as well as establishment of various terms of repayment, while taking into consideration the formation of the condition of material reserves and amounts mentioned in the credit proposal.

Granting revolving credit follows the bank's determination that the economic activity conducted by the borrower is consistent with the license obtained, its financial condition and proposed legal credit protection assuring it the ability to repay the negotiated credit. In addition, it is essential that the borrower have no delinquent taxes and that proper and real assets constitute the object of the credit.³

The bank grants revolving credit for a period of not more than one year and its amount, as far as credit granted for financing income funds is concerned, cannot surpass 30 percent of the value of the normal condition of reserves and amounts foreseen by the borrower in that period. As far as credit to finance required obligations is concerned, in the event of short-lived payment difficulties by the borrower, it cannot be granted for more than 30 calendar days, while the bank defines the amount of credit and the date for repayment. The amount of credit allowed constitutes the limit to which the borrower may incur debts, using the credit during the period for which it was granted.

The object of credit to finance investment can be investments based on the purchase of finished investment goods or construction, negotiated by the borrower within the limits of the license to conduct economic activity in Poland. A condition for granting credit, in addition to those mentioned earlier, is the execution by the foreign enterprise of its first investment in Poland totally in convertible currency. Credit to finance investment can be allowed up to 30 percent of the estimated value of the investment. The period for use of the credit cannot be longer than the planned term for completion (and settlement) of the investment, while repayment of the credit used should occur within three years from the time of the planned term of the completion of the investment.

The borrower uses the credit granted by having available a debit fund credit account opened for it by the bank, for payments associated with fulfillment of the investment on behalf of suppliers or contractors by way of payment for supplies, labor or services provided, thereby generating or increasing the debit balance in the account within the limits of the allowed credit. The borrower cannot make cash payments or transfers to other bank accounts from the credit account. It is obligated to document that the payment order

presented is related to the fulfillment of the investment that is the object of the credit. If it is ascertained that the borrower is covering a payment not related to the fulfillment of the investment that is the object of the credit with debit account funds or is not fulfilling other conditions for credit provided for in the contract, the bank holds the borrower's order on the debit account and terminates the credit contract, simultaneously asking the borrower to repay all credit used thus far and interest due the bank.

Based on the amount of credit actually used by the borrower, the bank establishes the amount of individual repayments installments and interest and the time limit for payment of these installments. The borrower may make repayments in whole or in part of the credit used before the due date specified by the bank. The borrower may also make repayments in whole or in part of the credit used during the period of use, thereby decreasing or liquidating the debit balance in the credit account, but such repayment does not restore the amount of allowed credit used in whole or in part.

Credit granted in zloties by the bank to foreign enterprises are subject to interest.⁴ The interest rate fluctuates between 15 and 18 percent, depending on the amount of credit and the borrower's financial situation. Also subject to interest is indebtedness by way of credit not repaid on time, which is 6 percent higher than the interest rate for credit.

It should be said that interest on credit (and indebtedness related to it) granted to foreign concerns is significantly higher than comparable interest rates on bank credit granted to Polish small manufacturing entities (the latter are on a scale of 6 to 12 percent). In looking for circumstances justifying the application treatment less favorable to foreign concern than to native ones in the construction of bank credit agreements, only to a certain extent can one point to the banks' money-credit policy, in accordance with the basis of the credit plan. The rates given in the table, which depict the quantitative and qualitative structure of credit granted by the PKO SA Bank seem to affirm the policy of "tight money" toward so-called Polonia firms.

It is evident from the data in the table that the credit policy conducted by the PKA SA Bank has given preference to short term revolving credit, earmarked mainly for financing export and anti-import production and articles that are scarce in the internal market. On the other hand, the granting of investment credit to increase involvement in investment activity of foreign firms' own resources has been limited.

It appears that one should look for the main reason for the high price of bank credit granted to foreign enterprises in the Polish side's attempt to secure the benefits flowing from the economic activity of these firms. The particular form of granting credit to Polonia firms is also meant to serve this end, which makes the bank's granting credit, especially investment credit (medium and long term) and credit for enterprises which have not yet begun operation, conditional upon the borrower's setting up, in a domestic or foreign division of the bank or in other agreed upon banks, a temporary deposit of money in convertible currency for the period of use of the credit. The bases for accepting the deposit, which is interest-bearing, are the settlements between the bank and borrower as to the amount and term of the investment in the

Credit to Units of the Non-Socialized Economy

SPECIFICATION	Credit Granted in 1982		Indebtedness due to credit as of 31.12.82		Credit Granted in 1983		Indebtedness due to credit as of 31.12.83		Credit Granted in 1984		Indebtedness due to credit as of 31.12.84	
	Quantity	Amount (in thousands of zloties)	(in thousands of zloties)	Quantity	Amount (in thousands of zloties)	(in thousands of zloties)	Quantity	Amount (in thousands of zloties)	(in thousands of zloties)	Quantity	Amount (in thousands of zloties)	(in thousands of zloties)
REVOLVING CREDIT	23	153,901	61,336	63	608,266	247,159	87	1,442,272	538,160			
INVESTMENT CREDIT	4	101,243	54,038	3	134,500	152,357	1	9,500	144,581			
TOTAL	27	255,374	115,374	66	742,766	399,516	88	1,451,772	682,741			

credit agreement. The bank may stipulate in the credit agreement that the refund of the deposit will take place by transferring the amount of the deposit to the borrower's convertible currency account in a domestic bank. It is worth adding that the bank's acceptance of the deposit does not release it from the obligation of requiring legal surety for the credit from the borrower. In granting credit to enterprises wholly or partly owned by foreign interests, the bank in the first place grants credit to those entities that offer to set up deposits in convertible currency.⁵

In assessing the importance of the economic (production based on imported raw materials or on domestic surplus raw materials, the import of machines and tools for that production, the application of modern technology, supplying the market with certain scarce goods, the participation of Polonia firms in exports on Poland's account, which also has the effect of making access to foreign markets easier for domestic partners, which thereby receive materials, raw materials, replacement parts, components, etc.) and financial (the right to levy taxes and tariffs on foreign firms, the repurchase by Polish foreign exchange banks of 50 percent of their net foreign currency income in zloties and temporary access to funds in the convertible currency accounts of these firms) benefits brought to the Polish economy by the operation of foreign firms within its structure, it is worth requiring further perfection of legal and financial solutions, whose goal would be not only drawing foreign capital into Poland, but also a more lasting association with the Polish economy. It seems that in the bank's credit activity, preference should be given to the sphere of operation of foreign firms that is characteristic of anti-import activity, export activity justified by the needs of the market and resulting from government orders. The preferences should be expressed in greater access to credit, including investment credit, since this is the source of enrichment of the national wealth. For manufacturing structures built on leased (primarily for 20 years) state land, after the term of the lease and expiration of the license to conduct economic activity, become the property of the state.

FOOTNOTES

1. Order of the Council of Ministers of 24.12.1982 on general rules for granting credit to enterprises owned wholly or in part by foreign entities (DZIENNIK USTAW No 43, item 281).

2. Art 25, Law of 26.2.1982 Bank law (DZIENNIK USTAW No 7, item 56 and No 71/1983, item 318).

3. Proper and real assets are: material reserves, revolving funds (materials, non-durable goods, unfinished products, finished goods and unfactored labor and services), crucial to carrying out current economic activity by the borrower and amounts included in the contractual repayment periods (in the event of a clear lack of a specified term for payment in the contract, the term is considered to be 25 calendar days from the date of the execution of the contract, e.g., shipment of goods, receipt of goods or labor, execution of services and in the case of contracts on fulfillment of investments and building renovation, 40 days from the date of execution of the contract).

4. Order of the president of the Polish National Bank of 7.12.1984 on interest on credit granted by the bank (MONITOR POLSKI No 28, item 189).

5. For example, in 1983 the PKO SA Bank accepted, by way of this particular form of granting credit to foreign concerns, convertible currency deposit equalling \$116,566.

12776

CSO: 2600/268

ECONOMY

YUGOSLAVIA

FEC CANDIDATE MEMBER KOVAC DISCUSSES IMF, ECONOMY

Belgrade PRIVREDNI PREGLED in Serbo-Croatian 29-31 Mar 86 p 3

[Interview with Dr Oskar Kovac, professor at the School of Economics of Belgrade University and one of the authors of the Long-Range Economic Stabilization Program, by Zoran Nikodijevic: "What the IMF Was Not Mindful of"; date and place not given]

[Text] Economic trends have been unfavorable once again in the first months of this year. To be sure, it was anticipated that this year would be specific in many respects, and the operating results do not belie that. The inception of several essential laws has not brought the changes the economy hoped for, but there is still much of that that needs to be interpreted and clarified, and even some things that need to be changed. Inflation is continuing its march toward unprecedentedly high levels, and rising interest rates have joined it as a separate accompanying factor.

Along with all that, the Yugoslav arrangement with the International Monetary Fund--though it is still not publicly acknowledged--seems to have contributed to precisely this specific economic policy. The middle of May, when the "standby" arrangement is supposed to finally come to an end after several successive years, is impatiently awaited, since rescheduling the debts over a term of several years could give the economy a respite.

We sought an answer to the question of what would happen with the Yugoslav economy after the end of the "standby" arrangement from Dr Oskar Kovac, professor at the School of Economics of Belgrade University, one of the authors of the Long-Range Economic Stabilization Program, and a candidate to membership in the new Federal Executive Council.

[Question] Which is why the first question had to do with the slogan which has already taken hold with the public: "Goodby, standby" [in English in the original].

[Answer] Until recently I believe that the economic policy, or more accurately that portion covered by an agreement with the International Monetary Fund, was not in essence causing particular difficulties for the Yugoslav economy. After all, it actually was all spelled out in the Long-Range Economic Stabilization Program.

What has been confusing me more recently to a certain extent is the interest rate policy agreed on with the fund. In leafing through my documentation I found in a journal published jointly by the IMF and the World Bank, FINANCE AND DEVELOPMENT, an article published back in December 1981 which says that indexing nominal interest rates to the rate of inflation hurts the developing countries, especially in a period when nominal rates have begun to rise on the international market.

If Someone Had Remembered the Article...

If the article argues that even though indexing the rates implies a zero real rate of interest, it leaves the real value of the debt untouched, and creates a particular burden in the first years of repayment of the loan because of the high nominal rates of interest. This mechanism shifts the largest portion of real repayment of the debt to the first years, or, put differently, in real terms it shortens the repayment term and thereby places the debtor in a more difficult position. The article also provides convincing calculations to back all this up, and I am simply amazed that the fund and its missions stipulating this kind of interest rate policy with Yugoslavia were not mindful of this.

[Question] Could Yugoslavia have refused to accept that?

[Answer] It is easy to be smart after the fact. I think that Yugoslavia could have refused to accept that kind of interest rate policy if someone had remembered to show that article to the fund's mission.

[Question] Newsmen are being warned almost everywhere to be cautious when they write about the IMF, since they are "waving about" articles and data taken from our newspapers. Was this an occasion when we should have done the same thing?

[Answer] This was a time when we should have "waved about" their newspapers. We could have shown them that the policy of that kind of indexing of interest rates causes the same consequences as it has with other developing countries, and they have publicly acknowledged that. With that fact in mind and without knowing the answers as to why the IMF forgot the adverse aspect of that policy, I can no longer be quite certain in my judgment that certain measures which the IMF proposed have not favored our difficulties. In the final analysis there is a turnover of personnel in the fund, and perhaps the present negotiators were not mindful of what others before them wrote back in December 1981.

It Is No Time To Take a Breather

[Question] Tell us what can actually be anticipated after 15 May. Will there be a respite?

[Answer] What happens after cessation of the arrangement with the fund depends to a large degree on our behavior. I believe that that question of yours of whether cessation of the "standby" arrangement will allow a respite reflects more a belief which is felt and anticipated by our public than the

fact that there actually will be any respite. I think that the times do not allow a respite. And what is it we would have a respite from anyhow? Very serious jobs await us in reforming the political system and carrying out the stabilization program, so that there will be no respite for a long time yet. We run a real danger of making mistakes by giving in to certain desires for a "time out."

[Question] What mistakes would those be?

[Answer] A drastic reduction of interest rates is already being expected after 15 May. That would undoubtedly cause savers to be very distrustful of the entire financial system, and we have just finished reaffirming an altogether natural concept: that people should save and that the savings should be invested to finance the economy. The distrust of savings which we would create by lowering interest rates would turn people once again to looking for capital only in the socialized sector of the economy, and if that is not sufficient, they would be looking for foreign credits. Throughout the entire world social accounts and economic balances show that with the exception of the socialist countries the personal sector is the only sector which has net financial savings and finances the other sectors. I do not see a single valid reason why we should frown on this as though it were something unnatural. Our financial system should take personal savings and commit them to productive investments in the economy.

The Solution Lies in Decomposing Interest Rates

Another mistake would be to create the impression in the economy that we have not given serious thought to real economic parameters, but are doing this because of the IMF. Many work organizations would in turn borrow excessively, since they would be counting on a negative real rate of interest.

[Question] Does this mean that you do not favor dropping interest rates and can this kind of weak economy support that?

[Answer] My answer is absolutely not. I did not say that we should not ease the burden of interest on the economy. I was only arguing that the mechanism of conducting interest rate policy in this way is mistaken, and I think that actually the solution should not be sought in this area. All I have to offer is that we begin the discussion with the fund about where this model of indexing interest rates had to lead when the implications were well known. The solution is to simply decompose interest rates, which would continue to be kept in line with the rate of inflation, breaking them down into two parts: into the minimum real rate of interest of 1 percent, if that is necessary for pedagogical reasons (to show that the interest rate should play a certain role in the economy), and the other portion of the high nominal rate of interest would be nothing other than revaluation of the credit in keeping with the rate of inflation. If that were done, then the major portion of debt repayment would not pile up in the first years of returning a loan. Solutions of that kind have been proposed in the press and journals, and I believe that a team of specialists in the present FEC is in fact working on that.

[Question] Let us go back to the IMF. Explain the actual meaning of the fund's "close monitoring" which is to follow after 15 May.

[Answer] Close monitoring is a relatively new conception in the IMF and was instituted with amendments to its charter at the moment when the fund accepted legalization of so-called "floating exchange rates." And, of course, when the fund began to play a much larger role in the so-called reorganization of the debts of the developing countries. Our public tends to see "close monitoring" in another light: that this is actually a condition whereby the IMF would continue to act as an intermediary in refinancing our country's debt. It is well known that we are emphasizing with valid arguments that the problems of our external sector are medium-term in nature and cannot be solved without a change in the structure of the Yugoslav economy. That is in fact why that kind of financing is being requested. The line of argument which applies to our country also applies to the other developing countries.

Only the World Bank has openly admitted in its last annual report on development that the world has an ever greater need for a medium-term policy of structural adaptation and multiannual refinancing or rescheduling of debt. Since it is obvious that the views are identical, we hope that a multiannual refinancing will take place, but a condition for that is that we accept the "close monitoring" of Yugoslav economic developments and economic policy by the IMF. The differences from the criteria of execution contained in the "Letters of Intent" related to the "standby" arrangement is that the criteria contained many more instruments of agreed policy which could not be departed from without valid reasons. In the "close monitoring" model the number of such indicators is much smaller, which makes it possible for Yugoslav economic policy to bring adaptation into line with the character of our economy and our difficulties.

"Close Monitoring" Does Not Alter the Essence

We ought not to harbor illusions that "close monitoring" does not offer the fund sufficient opportunities to evaluate economic developments in Yugoslavia keenly and objectively and by the same token that this will not influence the problem of refinancing our debt as in fact it has up to now. So, the role of the fund is not undergoing essential change. Another point has hardly been mentioned in our public, but it is very clear and has been accepted by all members of the IMF in an amendment to the fund's charter. That article of the charter gives the fund the right to examine the interest rate policy of all member countries, even those which do not have payments-balance difficulties.

The fund sees to it that the members conduct a policy of prompt adaptation of the real rate of foreign exchange, so that surpluses or deficits in the balance of payments do not pile up. This is in fact the mechanism of "close monitoring." In principle, this method of monitoring is not specifically directed toward a particular group of countries; on the contrary, this is a uniform policy. The fund issues warnings even to countries whose external sectors are piling up constant surpluses in the balance of payments that they must revalue their national currencies. Of course, the position of those countries is much more favorable, since it is easier to combat a surplus than a deficit.

[Question] You mentioned the structure of the Yugoslav economy. Are there opportunities here for the indispensable changes?

[Answer] I am skeptical as to our internal potential with respect to capacity, worktime, operation on more than one shift because that potential is very difficult to activate, and some of it is in fact fictitious. The untapped potential represented by mistakenly chosen plants, technologies, and production programs is not a potential at all. Its activation would probably cause more harm than good. Also the potential represented by worktime and operation on more than one shift does not lead anywhere unless the market is demanding those products and they can be sold at a profit. The structure of the Yugoslav economy certainly has to be changed in the direction of production oriented toward exports and a portion of production that would substitute imports. It will be very difficult to carry out that structural transformation.

Both the 5-year plan and the long-range plan up to the year 2000 by and large point to the right directions. For example, in the third section of the 5-year plan there is the idea of joint programming of production and exports which should provide a focus for the Yugoslav economy. But the question is this: Do we have the money for all that? This question remains an open one to some extent because of the numerous investment projects which are under way and which have to be completed and because a large portion of Yugoslav capital will probably be committed to those projects already.

The Nuclear Power Plants at This Moment Are Too Big a Bite

[Question] The question of the nuclear power plant is still bound up inevitably with the structure of the Yugoslav economy. As an economist and a specialist in international economics, tell us whether Yugoslavia has the money for that kind of technology.

[Answer] I must begin with a confession and a "heaping of ashes." I was on the working group of the commission for economic stabilization which debated and adopted the documents for the country's strategy in its energy development. That document states that by the year 2020 Yugoslavia should build a certain number of nuclear power plants, but that first it should carefully choose a technology and equip itself to control this entire process on its own. At the time when that was done, very sound analyses had been made of our energy consumption and projections up to the year 2020. It was convincingly argued that Yugoslavia would not be able to meet its needs from conventional sources, and at that time that was the principal reason for thinking about nuclear power plants. Aside from those calculations that we would have an energy shortage, I have no arguments whatsoever in favor, but I would like to support the demands for reassessing once again the broader application of nuclear power, or in fact to do so a third time if necessary before the final decisions are made. In the specific case, which in a way has begun with the preliminary invitation for bids, matters already stand a bit differently. As I understand it, it is not actually a question of buying anyone's nuclear power plants by borrowing abroad. On the contrary, the construction work and a large part of the equipment would be supplied by our own economy, and the imported portion, for which it would otherwise be necessary to provide foreign exchange, would be obtained on the basis of countertrade.

[Question] Would those goods be related to nuclear technology?

[Answer] I think it is no secret that Yugoslavia is collaborating in the multilateral program of CEMA for the production of nuclear power plants and that the Yugoslav machinebuilding industry and other industries have good reason to suppose that they will be manufacturers of that equipment. The counterargument is that in spite of everything there is the system of "siphoning." If the nuclear power plants are not to be paid for in foreign exchange and by borrowing abroad, we would still be paying for them with goods. There is always a risk of uneconomic prices in countertrade. If our products are good, why would we not be able to sell them on the convertible market and to earn foreign exchange? So, either we are spending foreign exchange or we are giving up a portion of the inflow of foreign exchange because of those counterdeliveries. Objectively, I have the impression that at this moment the nuclear power plants are too big a bite for the Yugoslav economy. Especially since experience teaches us that in this area there are no guarantees whatsoever with respect to the final prices of the nuclear power plants. Reality has discredited every advance estimate, so that this is too great a risk for us. I even think that we should not even enter into the full program for building nuclear power plants as it was originally conceived. There is a strong and undisguised interest on the part of a portion of the Yugoslav economy, above all machinebuilding, power machinebuilding, and related industries, and they represent a kind of "lobby" for the nuclear power plants. I do not say this with any sort of pejorative connotation. How are we to enter high society in the sphere of manufacturing nuclear power plants if we do not have any credentials whatsoever, since we have not proven our ability to make something like that that will work. Accordingly, we should think about entering the nuclear power plant program which is indispensable for our economy to pay the price of gaining experience. This is one of the arguments which has a certain weight, since Yugoslavia must be ready for the second era of nuclear technology, but it is certain that it is late for this one.

[Box]

To Become a Member of the FEC Is a Mistake Unless the Job Is Taken Seriously

At this moment it is difficult to say what the changes in the FEC will mean for the simple reason that all that is known at this moment is that changes are desired, but the criteria for selection of members specifically insists on a Yugoslav orientation, on freedom from allegiance to any partial or narrow interests, Dr Oskar Kovac said in connection with his nomination to be a member of the FEC.

"It seems that all this is done on a quota basis; although science is to some extent being given its due place in the new government, this does not necessarily signify a real solution. The main thing is that the goodwill and readiness be sufficient, but I do not doubt that that has also been the case in previous administrations. But the question of whether anything can be done also depends on certain other objective factors. In the studies of the economic situation in Yugoslavia done every year by the OECD, and they are both objective and well-meaning, the observation has been repeated several times

that there is perhaps no government in the world which has so little power and from which so much is expected. This was not just a general observation, but it was also supported with arguments to the effect that the Yugoslav Government does not have enough economic policy instruments at its disposition which it could use independently and directly to carry out its tasks: for example, the annual resolutions. One thing is stated in the resolution, but afterward the sociopolitical communities are more accountable for this than the Federation itself. There has to be a division of labor.

"When the constitution states that the affairs of the Yugoslav economy lie in the competency of the federal government, then that should be implemented and should not depend on the sociopolitical communities. And, of course, when it is clearly stated what falls in whose responsibility, then that accountability must be demanded. How is that possible under present conditions?

"I have to admit that I have never been prepared to take a position in the federal government, but I have realized that as a scientist who worked on the Long-Range Stabilization Program and who has been critical because that program has been carried out slowly and indecisively over the last 2 years, I do not have the moral grounds to reject the nomination to be a member of the new FEC, and the final decision is not mine to make. My services and my knowledge are necessary in my status as specialist, and if it turned out that this is of very little help in the operation of the federal government, then I would certainly regret it and feel that this had been a mistake.

"It has to be clear to the government as a whole who is to do what job, the jobs have to be clearly delimited, and everyone in his own area should have the instruments to perform the jobs assigned. Just those two conditions: responsibility and authority, would solve a third very important problem--and that is the problem of accountability," Dr Kovac emphasized.

7045

CSO: 2800/222

MILITARY

GERMAN DEMOCRATIC REPUBLIC

GROUND FORCES COMMANDER CITES ARMED FORCES GAINS

East Berlin HORIZONT in German No 2, Feb 86 (signed to press 3 Feb 86) p 4

[Article by Col Gen Horst Stechbarth, member of the Central Committee of the SED, deputy minister of national defense, and commander of ground forces: "Thirty Years of Reliable Protection in the Service of Peace"]

[Text] With justified pride in the most important and historically most significant result of their activities, members of the armed forces celebrate the 30th anniversary of the establishment of the NVA on 1 March 1986: shoulder to shoulder with the glorious Soviet Army and the other socialist fraternal armies they have fulfilled their class mission reliably over these 3 decades and have rendered an honorable contribution to the security of socialism and peace in the socialist defense coalition.

Members of the NVA are also obligated in the future to carry out the mission of maintaining peace alongside their comrades-in-arms. It is the principal goal of all their military efforts. Under the slogan: "Military action in honor of the 11th party congress--at all times combat-ready for freedom and socialism" the NVA joins in the comprehensive mass initiative exerted by the working class and by all workers of the GDR to afford universal strengthening of the GDR and conducts socialist competition to achieve a still further increment in combat strength and combat readiness in its units. For example, the challenge issued by the competition initiator of the ground forces, the Bahr Motorized Infantry Company from the "Hans Kahle" Troop Component, states: "We are fully aware of the responsibility which we carry with respect to the sure protection of socialism and peace in view of the tense military-political situation in the world. That is why it is our declared goal to continue faithfully to carry out our oath to exert all efforts to fulfill all orders in an exemplary manner in honest competition and to fight for fulfillment of the requirements of the program of political combat training."

Rooted in Revolutionary Tradition

Together with the workers of the GDR, we celebrate the 30th anniversary of an army of the people on 1 March; as the minister of national defense of the GDR, Army General Heinz Kessler, stated in his New Year's message to members and civilian employees of the NVA and the Border Guards, "this is the first and unique organization in the history of Germany which deserves this appellation."

With the creation of the National People's Army of the GDR, a new chapter in German military history was begun. For the first time, regular armed forces were established on German soil which were free of the unsavory tradition of German imperialism and militarism and to which nationalism, chauvinism, and revanchism was strange. They pose no threat, the peoples of Europe need not fear them. Their traditions are based on revolutionary class lines of German military history. They have their roots in the inheritance of the armed struggle of the German and international worker movement and of antifascist resistance, in progressive thoughts of progressive personalities. They draw their capacity and examples from the history of the worker and peasant power in the GDR and from their armed forces.

The names assigned to troop components, teaching facilities, and barracks of the ground forces--starting with Thomas Muentzer or Johann Philipp Bekker, John Scheer and Ernst Thaelmann, Rodion Malinowski, Karol Swierczewski and Julius Fucik through Willi Bredel and Otto Grotewohl--to name only a few examples--are more than external signs of honoring deserving personalities; they are primarily a symbol of the spirit and content of class and internationalist education among members of our NVA. This type of tradition differs clearly and deliberately from the military, fascist, and revanchist thinking which is prevalent throughout the Bundeswehr of the FRG which is used to support the anticommunist attitude and motivation of this army of German imperialism--a fact which is just now receiving new food through discussions dealing with the amendment of the traditional regulations for the Bundeswehr.

The peace-loving mission of socialist armed forces characterizes the mission of the NVA and the indoctrination of its members. None of its generals, officers, or soldiers dreams of conquest in foreign lands, none hope to gain glory and personal honor in bloody battles, just as much as no one in our socialist society gains personal advantage from armaments or from war. "Freedom is the most precious possession of mankind, its defense, its maintenance, are the most important tasks of the present." This principle, which was emphasized anew by the general secretary of the Central Committee of the SED and chairman of the National Defense Council, Erich Honecker, during his visit to troops in 1985, determines the military policy of the SED and the position of the NVA in the overall strategy of the party in the further creation of developed socialism and in the class argumentations involving imperialism.

The defense motives of NVA soldiers are based on the inseparable connection between socialism and peace, which, simultaneously, expresses the firm agreement of the social interests with the personal interests of our citizens. However, they know well that they are defending their class mission along a particularly important combat sector. At the western dividing line between socialism and imperialism, in a region of our globe in which the NATO Alliance has deployed its main military strength, they have made and continue to make an essential contribution to secure peace, together with the Soviet Army and with other fraternal armies of the Warsaw Pact. The knowledge of their great responsibility in the bitter class struggle of the present involving war or peace drives them to conscious creative fulfillment of their oath of office, promotes their initiative, their personal involvement in approaching the tasks of political and military training, and is the principal element involved in

the comprehensive mass initiative designed to further perfect the combat strength and combat readiness of their collective. This defense motive also drives them to exert major efforts in the interest of peace and to take on many a sacrifice and deprivation. The members of our armed forces gain a firm conviction that it is all worthwhile to commit their strength to the daily political and military training and to gain a high degree of military mastery from the strategic course of the Socialist Unity Party of Germany which is aimed at peace and socialism.

The higher results obtained in all training sectors during the last training year were only possible at this quality level because the superior officers were able to rely in their activities on the mass initiatives among army and civilian employees which had been initiated by the party and by the FDJ organizations. Thus, the number of army members and collectives who fought for the title of being the best in socialist competition and who fulfilled the not overly easy conditions rose. A comprehensive innovator movement helped develop numerous ideas which contributed not only to a further intensification and a higher quality of combat training, but also resulted in measurable savings in time and materiel.

Unswerving Brotherhood-in-Arms

Over the 30 years of its existence, the NVA of the GDR has always proven itself to be an army of proletarian internationalism. From its first hour it was conceived as a socialist coalition army under the leadership of the Socialist Unity Party of Germany and was built up as such. The SED applied the principle that the armed protection of socialism was international in character and that the strategic goal of the socialist community of states--to establish socialism in peace--can only be realized in firm fraternal bond with the Soviet Union and with all other nations of the Warsaw Pact. It is only in this firm alliance with the states of the Warsaw Pact, and particularly in closest brotherhood-in-arms with the Soviet Army, that we can, in future, maintain peace.

Today, the NVA is connected via thousands of threads to the glorious Soviet Army and to the other socialist fraternal armies; it is firmly integrated in the combat alliance of socialist armies. The fact that the NVA was able to handle its obligations as a full and equal member of the socialist defense coalition so relatively soon after its establishment is attributable in very special measure to the active help and support of our Soviet brothers-in-arms. Those comrades who received orders from the party of the working class to establish the armed forces of the German worker and peasant state had been hardened in the political class struggle and in the antifascist resistance, they had collected experiences in armed combat alongside the Spanish people in the battle against fascism and in the Great Patriotic War in the ranks of the Soviet Army, but now they face the task of leading regular modernly equipped and armed units and troop components in accordance with the experiences of modern military science and the rapidly advancing scientific-technical progress in military science. That was not simple!

Everyone who was present during the first hours of our NVA remembers gratefully how we were able to draw on the rich political and military experiences of our Soviet brothers-in-arms, how the Soviet comrades taught us the military craft in a socialist manner. In those first years, the germs of a brotherhood-in-arms were incubated which are bearing fruit today so many thousand-fold.

On the basis of determination of the leadership of the Warsaw Pact, the universal cooperation among fraternal armies has developed at an ever higher level. For the ground forces of the NVA, this has led specifically to close brotherhood-in-arms relations with the staffs and troops of the Group of Soviet Forces Germany (GSFG). Its principal form is the joint combat training, during the course of which not only preconditions for close political and military cooperation are worked out and firmed up, but which also make brotherhood-in-arms clearly palpable for each member of the armed forces. The multiple relationships with the "neighboring regiment," which experience a special high point during the annual week of brotherhood-in-arms in February, make an essential contribution toward creating and strengthening truly patriotic and internationalist thinking, feelings, and conduct among members of the armed forces.

Very close relations connect us also with all other socialist fraternal armies, particularly with the staffs and troops of the Polish Army and the Czechoslovak People's Army, with which we cooperate closely as immediate neighbors through joint missions in protecting socialism and peace.

In realizing the character and missions of the NVA, its members are firmly determined and capable of opposing any aggressor alongside their brothers-in-arms. With concern and indignation, they are following the peace-threatening activities of the aggressor forces of imperialism which are striving to realize their old goals of military superiority at any price and of imposing their will upon the peoples of the world--following the hopeful outcome of the Geneva summit conference between Mikhail Gorbachev and Ronald Reagan--in undiminished manner. Our armed forces members all the more support the comprehensive program of the Soviet Union to free the world from nuclear weapons, as proposed by general secretary of the Central Committee of the CPSU, Mikhail Gorbachev. They join in the worldwide demand for a responsible and conscious approach on the part of leading politicians of the United States and of the NATO countries in this new peace initiative of the USSR.

A Historically Significant Accomplishment

The most important source of strength of the National People's Army was and remains its leadership by the Socialist Unity Party of Germany. It is constantly devoting great attention to the NVA and to the other armed organs of our worker and peasant state, bearing in mind the Leninist teaching that a revolution is only worth something if it knows how to defend itself.

The SED has forged an inseparable unity between party, people, and army as a significant historical accomplishment of the 3 decades which repeatedly provides new energy for our armed forces and, consequently, is a repeated cause

for perfidious attacks on the part of our enemies. The firm confidence of members of our armed forces and civilian employees of the NVA in the clear goal-oriented leadership by the Marxist-Leninist party of the working class is shown by their activities and initiatives in preparing for the 11th Party Congress of the SED. The confidential individual conversations with members and candidates of the SED, the party elections, and the innumerable discussions and consultations involving army members and civilian employees in preparation of the socialist competition programs involved in the 1985/1986 training year prove their unequivocal support of the orientations provided by the party and their firm will to contribute to their realization through great personal involvement. This was again confirmed in a letter to general secretary of the Central Committee of the SED, Erich Honecker, which was drafted at the delegate conference of party organizations of the SED in the ground forces.

The organs of people's education and advanced and specialized schools, as well as worker collectives and the FDJ, are performing effective military-education work and are taking care of the follow-on generation required for military professions; the GST prepares young people for military service and reservists of the NVA are striving for good results in physical hardening and political and military additional training in collectives of reservists.

The members of the armed forces, who desire to make the 30th anniversary of the NVA a worthy high point in the preparations for the 11th Party Congress of the SED, wish to assure our party, our people, and our brothers-in-arms that they will do everything to fulfill the class mission, even under the complicated conditions which prevail during the second half of the 1980's, reliably and honorably.

5911

CSO: 2300/299

MILITARY

GERMAN DEMOCRATIC REPUBLIC

CONTINUED MODERNIZATION OF ARMED FORCES URGED

East Berlin MILITAERTECHNIK in German No 2 1986 (signed to press
9 Jan 86) pp 57-59

[Article by Maj Gen G. Lorenz: "30 Years of NVA--30 Years of Constant Concern by Our Party About Providing It with Modern Combat Equipment and Arms"]

[Text] Just a few days prior to the 30th anniversary of the NVA, the 14th conference of delegates of the SED party organizations in the NVA and the Border Troops of the GDR was able to report to the central committee and its general secretary, the chairman of the national defense council, Comrade Erich Honecker, that the class mission outlined by the 10th SED party congress had been fulfilled.

This confirmed in an impressive fashion once again that the NVA serves as a key component of peace in socialist national defense, led by the party of the working class and joined together in the unshakable class and arms alliance with the Soviet army and the other fraternal armies. At all times, the NVA has made its contribution to the reliable protection of socialism at a neuralgic spot between the two world systems in the heart of Europe. Led by the realization of the inseparable connection between strong socialism and a secure peace, the members of the armed forces and the civilian employees of the NVA take their place in the ranks of the broad mass movement of our people in preparation of the 11th SED party congress--knowing full well that the demands placed on the fulfillment of the class mission have never been higher than they are today.

Our party calls on us to solve two strategically important problems at the same time, i.e. the full development of the advantages of socialism for the good of the people and the guarantee of the requisite defense capability for the protection of socialism and peace. This dual goal will guide us in the combat phase which lies ahead.

On the basis of the decisions taken by the 11th SED party congress, it will now be our job to draw the necessary consequences from the objective demands at all command levels for the political education and combat training as well as for technical maintenance and supply needs of all the service branches.

Combat effectiveness and combat readiness must grow at a faster rate than the time, personnel and the physical and budgetary resources required to achieve it. This will place our socialist armed forces into an even better position to be faithful to their commitment to the alliance and to contribute to the preservation of peace and the security of the participating countries in conjunction with all the fraternal armies.

"Peace is the most valuable asset of humanity; its defense and preservation is the most important task of the present age." These are the words used by the general secretary of the central committee of our party to characterize the direction and aim of our struggle when he paid a visit to our air force/air defense command units. At the same time, he reemphasized thereby the fundamental integration of military policy and the role of the NVA in the overall strategic plans of our party.

Every stage in the development of our socialist armed forces is a reflection of the effort to do justice to this profound responsibility--in the spirit of the Leninist tenet that a revolution is only worth something if it knows how to defend itself. It is our job to make that clear as we conduct our political-ideological work with the members of the armed forces and the civilian employees and our military-political public relations efforts on the occasion of the 30th anniversary of the NVA. A book, published just a few weeks ago, entitled "An Army for Peace and Socialism" describing the history of the NVA provides us with excellent background material in this regard.

The NVA, called into being on the basis of legislation adopted by the GDR People's Assembly in 1956, represented the only possible response to the efforts above all of the resuscitated imperialism and militarism in the FRG aimed at destroying the GDR and incorporating it in the West.

In keeping with the strategic guidelines drawn up by the 2d SED party conference (which are still valid today) aimed at depriving imperialism of any desire to engage in warlike adventures in the heart of Europe, our party and its military policy have always been concerned that the NVA, as the core component of our national defense, increase its combat effectiveness and combat readiness to the required level. This has always been done in relation to developments in the international class struggle, particularly with regard to the undisguised and systematic attempts by the United States and its NATO allies to blackmail socialism by military means.

The NVA proved its mettle in crisis situations engineered by the class enemy (e.g. the measures adopted to protect our socialist order on 13 August 1961) and in joint exercises with the fraternal armies in which it demonstrated its ability jointly and reliably to protect the peoples of the socialist community of nations.

In a period of the most serious threat to world peace since World War II, socialist military power is faced with the necessity of doing justice to qualitatively new responsibilities. To be able to do this is tantamount to relying even more on the advantages of socialism in the interest of securing its existence. It will be our job in this connection to make full use of the potential of the scientific-technological revolution in the interest of comprehensive intensification of our entire political work, our combat training as well as of technical maintenance and the supply of equipment for the NVA.

Our basic efforts aimed at thwarting the primary imperialist powers' attempts at achieving military superiority must be guided by the comprehensive utilization of the achievements of the scientific-technological revolution and development and introduction of the most up-to-date combat equipment and weaponry in all branches of service.

The nature of military technology is being determined more and more by electronic and microelectronic components which result in a substantial increase in its effectiveness. Automatic or mostly automatic weapons systems, combinations of reconnaissance, fire control and killer equipment as well as the increasingly widespread use of electronic equipment throughout the command process are becoming more and more characteristic of the modern military establishment. Even wider use of key technologies in the military field will continue to spread.

The fact that science itself has become more and more of a direct factor in combat is leading to profound changes in armed hostilities and calls for new solutions in political and military affairs. This applies in particular to demands on awareness and organizational skill, military know-how, aptitudes and skills and on the physical and psychological stamina of the members of the armed forces themselves. Commanders, staff officers and specialists as well as the party and mass organizations must understand that they are faced with entirely new responsibilities in their human relations work. Their ability to cope with these problems successfully will have a major impact on whether an optimal increase in combat effectiveness and combat readiness can be achieved with the help of available and/or modernized combat equipment.

As part of the social consequences arising out of scientific-technological progress certain trends are beginning to emerge in the man-to-technology relationship which have a substantial impact on the activities of our soldiers, non-commissioned officers, officer candidates and commissioned officers.

The growing destructive power of modern combat equipment, the great significance of the human factor in military affairs, the increasingly important role played by the time factor, the growing diversity of military activity and the time spent on care and maintenance of combat equipment

and weaponry all make unprecedented demands on the efficiency of the members of our armed forces. Their political awareness, their educational background and their technical skills all are major factors in meeting these demands in our education and training programs.

The dialectical unity of the sense of political responsibility, military skill, firm military discipline and creativity plays an even greater role today than heretofore. At the same time, the changes in the character of the activities of the members of the armed forces which are the result of their ability to cope with the military revolution tend to liberate new energies that can be channeled into creative initiatives. The ability to master the demands resulting from "long-range comprehensive intensification" involving all aspects of political and military life call for two closely interconnected approaches, as was stated at the 13th conference of delegates of the SED party organizations in the NVA and the Border Troops of the GDR, i.e. "intensification, rationalization and economy measures are to be pursued in such a fashion as to achieve maximum combat readiness and as not to place unnecessary burdens on the economy."

The guidelines for this type of human relations work are laid down in the Politburo decision of 11 June 1985. The members of the armed forces are to be motivated and enabled in appropriate ways to familiarize themselves with the combat equipment and weaponry entrusted to them and to contribute to the attainment of a high state of combat readiness through proper care and maintenance.

Socialist competition, as an inseparable component of the entire education and training process, is an effective means of enhancing a high state of combat readiness, creativity, technical skill and the understanding of military-economic requirements among the members of the armed forces.

The idea therefore is to do justice to the great demands connected with the introduction of new and/or modernized combat equipment and weaponry in the interest of achieving maximum gains in combat effectiveness as rapidly as possible. This calls on all commanders and those responsible for combat training and technical combat readiness to give even more thought to the methods to be applied, to the costs involved and to the quality and efficiency to be achieved. They must make every effort to apply the most advanced educational and training methods and, if necessary, be willing to take risks and apply entirely new ones.

Even greater attention should also be paid to enhance the love for technology and high levels of technical training so as to upgrade the understanding and skill of operators, commanders and specialists and to assure the use of the most advanced training equipment, including simulators.

The achievement of combat effectiveness and combat readiness calls on all of us to maintain our combat equipment and weaponry in a state of combat readiness at all times so as to be able to use it under all conditions.

New and advanced combat technology, because of its systems character and compact construction, frequently requires more maintenance time and effort as well as special technical know-how. But quite often the strength of the operators and/or crews is relatively small and there is little time for maintenance.

All this calls for disciplined handling both on the part of the technical officers and specialists and those responsible for maintenance at all command levels in the interest of constant technological combat readiness of the combat technology and weaponry. It also calls for a high level of training on the part of maintenance personnel, for additional intensification of all maintenance operations and for increased military-economic efficiency in the care of components, spare parts and other types of physical equipment.

In this context, the central maintenance facilities bear a special responsibility. They will best be able to exercise their control function over the other maintenance facilities, if they continue to rationalize maintenance operations with the help of planned innovator activity and to develop existing technologies and adapt them to current standards. They will also make it their business to develop their own rationalization methods. This will rapidly lead to the achievement of great military and economic gains at minimal cost.

Maintenance at the troop level keeps on growing in importance along with planned industrial maintenance operations. Shorter processing times and high-performance maintenance in particular will have a substantial impact on the level of combat effectiveness and combat readiness.

Diversified experience and daily military practice as well as the initiative and creativity of the members of the armed forces and the civilian employees provide us with a good basis for meeting the constantly growing demands for technical maintenance and the fulfillment of the NVA's material needs. In this connection, it will be of great value to exchange information in a differentiated and goal-oriented way on a regular basis. This is a significant way in which advanced information can rapidly be generalized and in which unjustifiable divergencies in performance may be overcome. In this way, they make a contribution to transforming outstanding performance into the everyday standard for performance as such.

Although we have good reason to be proud of our achievements over the past 30 years, we cannot fail to see what needs to be done in the years ahead to strengthen national defense still further. As Erich Honecker said in an address to graduates in 1985, "the qualitative growth factors and the intensification of all processes of military life as well as the unity of military affairs and science must be enhanced to an ever greater extent."

The manifold activities of the members of our armed forces and of our civilian employees in preparation of the 11th SED party congress are an indication of their profound awareness of our party's policy which is directed toward peace and of their growing readiness to help implement this policy by making major, lasting contributions of their own.

9478

CSO: 2300/294

POLITICS

POLAND

SEJM COMMISSIONS CONFER

Commission Meeting Reports for 18 March

Warsaw TRYBUNA LUDU in Polish 19 Mar 86 p 5

[Article by [esa]: "From the Work of Sejm Commissions"]

[Text] On 18 March, 6 Sejm commissions met:

The Sejm Foreign Affairs Commission. Deputies heard a report on the course and results of the 27th CPSU Congress presented by Politburo Member and PZPR Central Committee Secretary Jozef Czyrek and were also informed about a program for the development of scientific and technical cooperation between Poland and the CEMA nations.

The Sejm Industrial Commission. Deputies discussed the problems of expanding and modernizing factories producing fertilizers, pesticides and herbicides. They also examined the realization so far of plans for the production and provision of agricultural machinery and equipment for 1985. Many proposals and postulates were made concerning enterprises that are supposed to see full employment in the industries producing agricultural supplies and equipment.

The Sejm Commission and Transportation and Communication. During the commission's meeting, lively discussion was aroused by the presentation of investment programs for the state railways and communications. It was pointed out that both of these areas should receive a large amount of funding in the next few years. The draft of the 1986-1990 investment plan calls for the expenditure of at least 426 billion zlotys and out of this sum, about 210 billion is to be allotted for purchases with the remainder going for investment construction. The Ministry of Communication decided to place its main emphasis on the development of telecommunications. In positively evaluating these plans, the commission members pointed out that steps must be taken to allow a greater than planned increase in the number of subscribers (there will be at least 750,000 more during this 5-year period).

The Sejm Commission on Agriculture, Forestry and Food Management. How are the laws on farmer's social and professional organizations and cooperative rights being realized? Do the present laws create favorable conditions for a growth

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of rural self-government? Should corrections be made to the existing regulations? These were the questions considered by deputies on 18 March. This commission meeting initiated a cycle of work to prepare the draft to a resolution for the Sejm plenary session which is supposed to evaluate the realization so far of the agricultural program up to 1990.

The Sejm commissions on technical progress and legislative work held a joint meeting at which they reviewed the government's "atomic law" bill. During this meeting, the text for the final version of the bill was approved and it was recommended that the bill be submitted to the Sejm plenary session.

Public Education Commission on Supplies

Warsaw RZECZPOSPOLITA in Polish 19 Mar 86 p 2

[Article by Akow: "More Books or Discipline"]

[Text] (Own information) (C). The Sejm Commission on National Education and Youth spent several hours discussing the state of schools supplies in textbooks, readers, didactic aids and equipment. This discussion received the participation of representatives from the departments of culture, education, school publications and from institutions and establishments responsible for the distribution and production of what the schools need.

Textbooks took first place on the list of needs, of course. Teaching reforms have led to an increased demand that printers have been unable to meet. It has now become necessary to ration textbooks and regulate their free loan to students. As the deputies stated, this system has turned out to be too much of a problem. It has been discovered that the supply of textbooks to schools is often delayed. Some schools have a shortage of textbooks while others receive too many. The cause is printing delays, poorly-organized distribution, increased demand, hoarding, etc. Most of the deputies were in favor of changing this system and proposed that textbooks go into free sale.

Similar complaints were levelled at the system of providing student aid and equipment. Under the present system of centralized purchasing, the schools are arbitrarily allotted a certain amount of assistance. The assistance does not always go where it is needed and the type of supplies actually needed is not sent to where it is needed. According to the deputies, the schools themselves should decide what and when they should buy and in what amounts. The poor quality of books and equipment was also criticized and it was stated that this amounts to a real waste under the current shortages in education.

As information provided by the Ministry of Education and Upbringing stressed, the criticized system has contributed to a considerable improvement in school supplies and better employment of the education resources provided by the state budget. While in 1982 the schools received two billion zlotys worth of assistance, that amount will reach more than four billion this year.

In the opinion of the ministry, the recently-noticed systematic growth in textbook production has improved school supplies. This year, the production

of textbooks ordered by the government will reach a level of about 55 million copies. However, to continue meeting the demand, we will have to employ used textbooks. Should we change the distribution system or do we simply enforce discipline among those responsible for textbook distribution in the schools? That question went unanswered. The commission will send its opinion on this matter to the Ministry of Education and Upbringing which will have to make a decision as soon as possible.

The conference discussion was led by Deputy Jozefa Matynkowska (PZPR) and the following deputies participated: Jerzy Chojnacki (ZSL), Eugeniusz Kot (SD), Helena Jarczyk (nonpartisan), Krystyna Boboryk (SD), Edmund Meclewski (nonpartisan), Alojzy Szczesniak (ZSL), Mieczyslaw Bandurka (SD), Anna Staruch (PZPR), Jacek Piechota (PZPR), Romualda Matusiak (PZPR), Zofia Witkowska (PZPR), Daniela Kwiatkowska (PZPR), Boleslaw Doktor (ZSL), Kazimierz Szark (ZSL), Stanislaw Nowel (PZPR), Zdzislawa Gnoninska (nonpartisan), Antonina Dziuban (PZPR) and Ryszard Wosinski (PZPR).

Defense Commission on Youth Patriotism

Warsaw TRYBUNA LUDU in Polish 20 Mar 86 p 5

[Text] On 19 March, the Sejm National Defense Commission met to discuss the patriotic and defense education of youth in secondary schools and to evaluate ideological education work among draft-age and pre-draft age youth.

The meeting was chaired by Deputy Henryk Jablonski (PZPR).

Following the presentation of materials and information from representatives of the Ministry of National Defense, the Ministry of Education and Upbringing, the National Defense League and the Aviation Club of the Polish People's Republic, the commission decided that the army is still a very important force in the defense training of the young generation. It was also stated with much satisfaction that the army has undertaken many ideological and organizational enterprises to create a broad front for working with draft-age and pre-draft age youth and is cooperating with regional governments, social and youth organizations, educational establishments and the directors of places of employment.

The participants in the discussion were: Krystyna Boboryk (nonpartisan member of the Commission on National Education and Youth), Gerard Gabrys (PZPR), Henryk Jablonski (PZPR), Antoni Jasinski (PZPR), Kazimierz Pilat (PZPR), Tadeusz Stadniczenko (SD), Andrzej Trzaskalski (ZSL) and Ryszard Wosinski (PZPR).

The commission highly assessed the patriotic and defense-training work of teachers and especially the defense and military training in secondary schools, the aktivs of public organizations, the National Defense League, the Aviation Club of the Polish People's Republic, Volunteer Labor Brigades and the Union of Former Professional Soldiers. It was stated that a considerable contribution has also been made by the Polish Scouting Union.

The commission appealed to youth organizations and especially the Union of Socialist Youth of Poland and the Rural Youth Union to more energetically undertake new initiatives and actively participate in the patriotic and defense training of youth.

12261

CSO: 2600/356

POLITICS

POLAND

TV EXCHANGE WITH CZECHOSLOVAKIA HIGHLIGHTED

Warsaw ZYCIE WARSZAWY in Polish 12 Mar 86 p 2

[Article by W: "Agreement on Television Cooperation Between Poland and Czechoslovakia"]

[Text] Prague (PAP). Correspondent Leszek Mazan writes that a long-term agreement has been signed in Prague for cooperation between Polish and Czechoslovakian television. This agreement calls for an exchange of all types of television programming, artistic ensembles, journalists, directors and various types of technical personnel. Coordination of program and production planning will above all make it possible to increase for both networks the amount of programming for children and youth as well as documentaries, sports and entertainment shows.

A protocol signed at the same time specifies plans for the next two years. Polish and Czechoslovakian television will be producing special programs on the occasion of national holidays in both countries. In March, Czechoslovakian artists will cooperate to present a review in Poland of their country's films, plays and musical and folklore programs. In June or September this year, both countries will present a review of animated films. The official journalistic programming for for both Czechoslovakian and Polish television will chiefly cover robotics, electronics and the development of the Polish ship-building industry.

Both networks will work together to produce a film documentary about Prague while in 1987, both networks will broadcast a program titled "From Prague to Warsaw and From Warsaw to Prague -- History, Legends and Modern Times".

The agreement and protocol were signed by the chairman of the Radio and Television Committee, Miroslaw Wojciechowski, and the general director of Czechoslovakian television, Jan Zelenka.

12261
CSO: 2600/349

POLITICS

POLAND

COMMENTS ON JOURNALISTIC ETHICS

Warsaw PRASA POLSKA in Polish No 3, Mar 86 pp 3-10

[Article by Jan Brodzki: "Ethical Attitudes of Journalists"]

[Excerpts] Dear colleagues! It is very difficult to give an opening address to today's meeting, the joint session of the Main Directorate of the SD and the Plenum of the NSD. As we know, the subject of this meeting is the ethical attitudes of journalists.

The main problem was the fear of sounding too moralistic. Whenever speaking about morality and ethics, one must guard against sounding like a preacher in his pulpit. The matter that we are considering today is an important one but it is not hard to sound ridiculous in talking about it.

A second problem is that it is hard to feel that whoever is giving the introduction to the subject is above suspicion or in this case, above all suspicion of having ever violated the commendable values that we will be discussing today.

The next problem is that any discussion about this type of problem really requires some previous study, if not strictly scientific, then at least to some extent methodological. Not counting occasional studies, such research has not been conducted. Therefore, at the very start it is clear that our discussion today has been nothing more than an introduction to a complicated and difficult undertaking, namely a scrupulous and methodological report on the ethical attitudes of journalists as they themselves assess these attitudes and how the public sees them. There are many people who would be interested in this subject and the leaders of the SD will have to decide to whom this material is to be addressed.

How did the working group of the NSD presidium prepare today's opening address? First of all, we asked scores of our colleagues to jot down a few thoughts which they felt should be taken under consideration during preparation of the introduction to forum discussion (and we also asked them to anonymously present some positive and negative examples). Second, we made a similar appeal to other group of journalists by asking them to take a poll on this topic within various representative rural and urban groups.

In sum, out of the few score of persons that we asked to help, not everyone responded except for one certain group. I give my sincere thanks to those colleagues that did want to help us. I also wish to thank a group of young colleagues from the Warsaw University journalism department who labored to help us and in different communities interviewed people about their opinions on journalists' attitudes. Their observations and ideas were used in this address and will most certainly be used as well in discussion by our colleagues from the working group.

What ideas do the journalists themselves have about the moral and ethical attitudes of their professional group?

Quite often, a very important motif appears. To summarize it, the idea is mostly sharply presented in the statement of an experienced journalist who was educated to be a teacher: "I feel that we cannot separate moral and ethical attitudes from ideological and political attitudes. One influences the other. Often, it is only the behavior that we assess in moral categories that allows us to recognize what someone's real ideological views are rather than those that he may declare in publications or at meetings. Therefore, if we speak of the unity of ideology, politics and economics, we can also say that ideological and ethical attitudes are also united.

"An example: whenever journalists have gone over to the political opposition, this was often a morally ambiguous act often connected with a change not only in ideological point of view but moral and ethical considerations as well: they came to recognize values different from what they once declared.

"These are problems that we seldom consider but it is in these ideological attitudes that I would look for the origin of journalists' views and ethical and moral behavior".

Colleagues sharing these reflections are pointing out that in examining the ethical attitudes of journalists, it is necessary to consider what it is that affects their attitudes, what the journalists encounter in their contacts with the public and what attitudes the journalists find within their own editorial boards.

With regard to the first idea, one journalist has formulated the following idea: "We cannot look at moral and ethical values abstractly from the state of society as a whole. We have not only been going through an economic crisis but also a crisis in attitudes. The ethics of a journalist do not arise from a social vacuum but are to a certain extent a reflection of a broader reality". This is an idea that would be interesting to consider in today's discussion.

As for the second, namely the atmosphere within editorial boards, we can see the following opinion: "Avoidance of ideological subjects or difficult political themes is often caused by a lack of ideology which does not at all stop some people from waving their party membership cards. Such moral hypocrisy seems to be a real phenomenon and at the same time, , real commitment is regarded by journalists as a sign of professional ambition or as

a means of taking advantage of an opportunity to be recognized by the government and is therefore viewed as morally negative".

The same respondent wrote: "Similar hypocrisy is found with regard to capitalist and socialist countries -- journalists eagerly travel to capitalist countries to write about 'decaying' capitalism because that is easier, brings them more prestige and sometimes very great material benefits. It is harder to write about socialist countries because such articles are less appreciated and the earnings are hard to turn in for Pewex coupons".

As we have already said, some correspondents point out that ethical attitudes are shaped by the relationships within editorial boards and also by the policy of the editors. A colleague writes: "If the order for material is not accompanied by information on the ideological motives or what the need of the moment is, if reality is manipulated to hide inconvenient facts or negative facts about our side or our people are not suppressed, the journalist is working under a moral double standard. After some time he may become cynical, write everything for his superiors, avoid sensitive topics and keep his own views and opinions to himself. This is also how opportunistic attitudes are formed.

"The journalist must therefore have a profound ideological and political motivation, broad access to information and time for discussion. For that reason, we write as we do -- so that the difficult art of strategy and tactics will not distort journalists' attitudes".

"A signal fact in this matter," continues our colleague, "is the masochism of running down our Polish shortcomings and this has nothing in common with any ethics of criticism. They are saying that everything Polish is shoddy and bad. In some columns we delight in this and that is irresponsible and from a point of view of public morale quite harmful".

Should the other side of the coin be that Poles do everything quite well? Such an approach would obviously be nothing more than pure demagoguery.

It sometimes happens that journalists say sharp and crushing things. Are they always completely fair? Well, that is something that will come out in discussion because it would not be good for this presentation to settle everything to the last detail. For example, a colleague referring to the connection between ethics and ideological and political attitudes writes: "In our press, the model do-nothing is a blue-collar worker, the one drinking a beer out on the sidewalk. However, it is harder to find any criticism of that worker's superiors or those who are supposed to organize his work or not counting the stereotyped bureaucracy, any criticism of the so-called mental workers. And this brings me to the conclusion that our intellectual journalists or at least some of them actually take a high-handed view of workers even if they do write about the leading role of the working class".

And now, dear colleagues, what do the others, the blue-collar workers, the farmers and the representatives of various white-collar professions think about us? As I have already said, this is not a scientific sociological poll but rather the results of some honest opinion-taking by journalists and, just

as in the case of any conclusions drawn from the statements of journalists there is no question that unscientific conclusions about certain cases would be very harmful to the journalist community. A remarkably large number of journalists are people very ideologically and fervently committed to serving society and the state rather than their own personal success. And society as well as the state have often demonstrated their faith in the people of the mass media. The gestures of recognition and gratitude by readers, listeners and viewers really embarrass journalists. However, we are here to discuss not the things that give us pleasure but what worries us in , among other things, the opinions of what journalists feel to be honest people, industrious, sincere and open. What are they accusing us of and why?

An engineer and three blue-collar workers from a large machinery factory are talking: "It is irritating that for a long time, during the second half of the 1970's, when negative events were increasing and causing much bitterness, the journalists chose to take the side of the administration and the people steering our political life and also played the role of success singers full of joy at the excellence of social and political life without conflict. We read then their beautiful reports from conferences and proud statements about the sort of dynamic growth envied by our enemies and even our foreign friends.

"These same journalists just as raptly took sides with the Solidarity extremists angry at everything and played the representatives of a wronged people which in its so-called faceless masses really did not at all condemn everything nor did it reproach the socialist system or the party. In other words, the gray man in the street did not generalize individual bad cases as the total negation of everything and everyone.

"Have not some writers have not inflamed the public mood, starting by poking fun at certain public figures followed by institutions and then the entire PZPR, the social and political organization and mass organizations having in their name or activities anything in common with the party. Is this supposed to mean that an empty pot boils the fastest. Editors! Please do not be offended because we are speaking frankly as agreed.

"Once again, when that fateful decision was made in December 1981, were these not the same people that 'found themselves' always ready to correct things and always found ways of making a soft landing? For that reason, they are unable to do much and ineffective is propaganda limited to sermons and false lessons not to mention those that get lost in details. Just how often have such false lessons given the impression that they have exhumed the old methods of talking to the public, the ones that we though had been buried once and for all in 1956? Can anyone be surprised that this irritates the workers?"

The secretary of a district party organization, an advisor to a neighborhood council and a shift foremen from a machine-tools division are talking: "The propaganda seen on television is cottage work addressed to what is thought to be simpletons and people of low intelligence. I am not even referring to the forms they use, the continual stammering and the effort to make witty comments. Good Lord! Sometimes I wonder how that is possible. I think that it is possible for two reasons: conceit and ignorance but most of all conceit at the fact that they have reached a place where others see them but no one

can interrupt or challenge any of the stupid things they say. Sitting on the other side of the microphone where they can make their sermons, they feel that they have in some way been distinguished from the faceless masses in the street. They think that they are completely free to say what they think because the viewer has no way to disagree with them or express its own opinions. This right to speak is easily perceived as a distinction and their conceit gives them a feeling of superiority which reinforces their bumptiousness".

In all of the places of employment whose workers were quoted, the general complaint, especially in larger industrial plants, was: "It is a shame that the journalists who write about factory problems and workers are mostly people that do not know anything about blue-collar workers, do not like them or talk to them one-on-one, have never lived their lifestyles, have never been in factories except on occasional visits with members of higher organizations and therefore do not know anything about workers' problems. They know only the texts of reports or resolutions by the central government. Their writings often contain dissertations about the type of workers that never existed. These articles are hot air that workers cannot understand because they have nothing in common with their feelings, intentions and needs".

A journalist from another corner of Poland had spoken with blue-collar workers and technicians. He relates their views: "The basic responsibility in the profession of a journalist is or should be to earnestly and objectively present events facts and attitudes and because of the great social resonance of the information presented by the mass media and its much greater ability to shape attitudes about people and events, the honesty and ethics of this profession should be based on eliminating one's own emotions and subjective views about people and events described in the press and broadcast over radio and television. The goal of journalistic activity which also frequently consists of criticizing various aspects of social or economic life should be to uphold higher values and the public good and interests.

All of a journalist's critical activity should be accompanied by some consideration of its results. Often, in a search for sensation without having delved deep enough into the heart of a problem, criticism can produce a considerable amount of social damage and at the same time undermine faith in journalists.

The attitude of an arrogant journalist is negatively assessed both in terms of the people he interviews as well as the problems he describes. This is especially true of young journalists. A journalist who feels that he is the only prophet about a problem addressed by the press is also seen very negatively.

One of our most experienced journalists who is working in a large provincial city writes: "Many of the workers that I try to talk with often say that the journalists that come to their places of work to take material 'from above' are much too aloof. They say that these writers avoid the workshops and if they have to come into the production halls, they treat the experience like some kind of outing. They look at the machinery and equipment, avoid the

people and satisfy themselves with the explanations given by the plant directors.

"For example, I have also heard workers say that trade unions, youth organizations and party organizations are described in terms of what is said about them by the directors. They do not talk with any of the employees that often have other views and feel that their work is poorly organized, wasteful and messy.

"The press also gives one the impression that the problems of rural life and the food supply are being solved by agricultural institutions rather than by efficient farmers.

"Workers say that advertisement for many firms is very striking. These are most of all plants that make finished products that are most often still unavailable to consumers. Despite the many shortages in the work and production activity of these firms, their activity is still shown in a good light. As they say, the directors know how to follow the journalists who allow themselves to be maneuvered into writing unjustifiable success propaganda. Unfortunately, this is often connected with the journalists purchasing goods in the same plants or even more lucrative proposals. Resourceful directors, especially those in the construction business, that do construction work overseas can finance a trip to one of the other CEMA countries for a journalist. The promise of such a trip not only leads to a series of deserved or undeserved positive articles but the bad work that this firm is doing inside of Poland is also praised. The conversants were not opposed to such efforts to do construction work abroad but they do feel that that in such situations the journalists should make up their own minds and be completely independent of the firm whose work they are supposed to evaluate.

"Still other examples can be given. The workers say that they know the housing situation is difficult. Journalists have no priorities in receiving housing and for that reason that also try to develop a close relationship to the directors of housing cooperatives and receive an apartment much faster. And the writers' hands are tied again. They cannot write anything critical about the director who is well known to be a racketeer and man of means on other people's means".

Ladies and gentlemen, there is no way we can quote everything that we were told because that would make a too-long speech even longer. What keeps coming back is the problem of credibility and a journalist's sense of honesty toward the person he is writing about (I am reminded of a village elder, a peasant-worker, who together with his farm was described by a journalist that never even talked to him). Therefore, I wish to conclude with how this elder felt about that experience: "Maybe such reporting appeals to people who do not know the facts not to us, the subjects of such a report. Such writing discourages one from reading and angers rather than motivates. If other journalists are writing like that, we cannot believe in the printed word which in our neighborhood has always been taken seriously". If honesty, high ideals and qualifications are regarded as the basics of our professional ethics and credibility, then to a large extent our attitudes are

what determine how well we serve society and the state and how effective our propaganda can be today and for tomorrow.

For today means at this moment in which society is assimilating the ideas of the party program.

For tomorrow means the period in which the 10th Congress's program will be carried out.

In his speech at the conclusion of the 23rd Plenum of the PZPR Central Committee, Premier Wojciech Jaruzelski very strongly emphasized the great role that the press has to play in this area. The better we fulfill our tasks, the more our words will be perceived by the public as proof of our professional ethics.

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POLITICS

POLAND

BRIEFS

CATHOLIC VALUES NOT APPARENT IN SOCIETY--"They" are guilty of everything...At the same time, society is becoming a Catholic one and is most hostile and hateful to its own self. Shopping lines are hell and hospital conditions are humiliating. There is no sign of love in social life and here everyone bears disaster like Catholics. Morality is a showy facade, Sunday Catholicism has not worked its way into the very core of Polish thinking any more than socialism has...The people have not kept the Czestochowa vows. The church has not won its fight against alcoholism and there is no sign that it ever will. It is a sign of the times that the church is most often applauded when it gets involved in political action. [Excerpts] [Warsaw SZPILKI in Polish No 10, 6 Mar 86 p 3] 12261

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